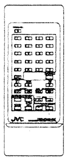
JVC

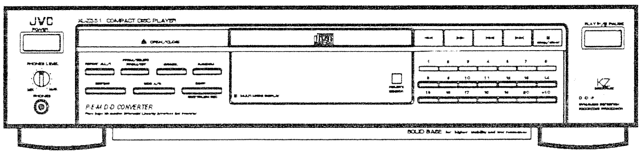
SERVICE MANUAL

COMPACT DISC PLAYER

XL-Z551TN
XL-Z552BK

COMPACT disc DIGITAL AUDIO





COMPU LINK
Remote
Control Component

Notes : 1. XL-Z551TN and XL-Z552BK are completely same in their structure, except for their outlook colors.
2. For instruction manual, please refer to the XL-Z451TN / XL-Z452BK (S.M.No.20324).

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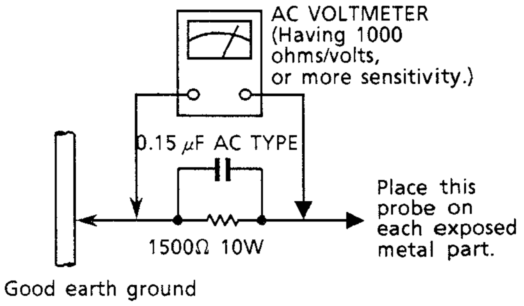
No.20321
Apr. 1992

Safety Precautions

1. The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute repalcement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, contorl shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet, particularily any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.).
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10 W resistor paralleled by a 0.15 μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

Important for Laser Products

1. CLASS 1 LASER PRODUCT
2. DANGER : Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. CAUTION : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.
4. CAUTION : The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
5. CAUTION : If safety switches malfunction. the laser is able to function.
6. CAUTION : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
7. CAUTION : The compact disc player provides a laser diode of wavelength 780-790nm and optical output power typical 3mW at the laser diode.

VARNING : Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

ADVARSEL : Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

ADVARSEL : Usynlig laserstråling ved åpning, når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

REPRODUCTION AND POSITION OF LABELS

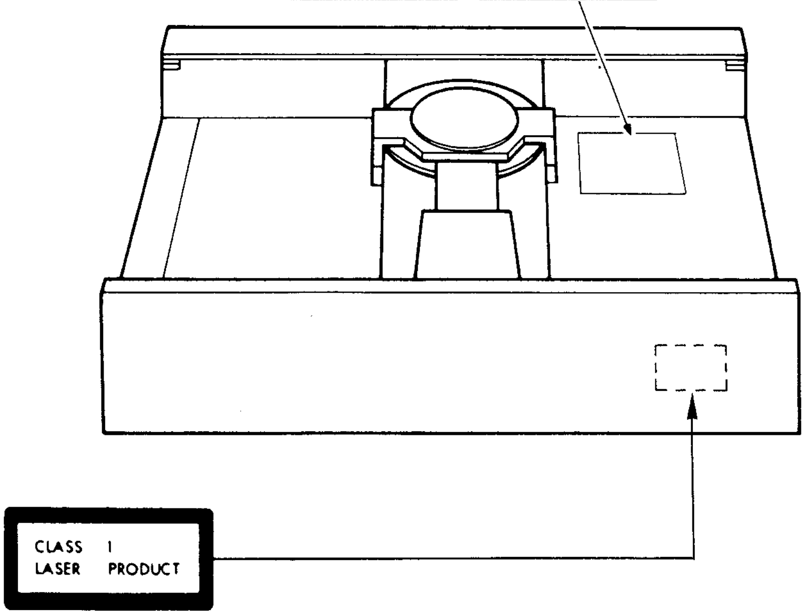
WARNING LABEL

DANGER: Invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e)

VARNING: Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen. (s)

ADVARSEL: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling. (d)

VARO: Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f)



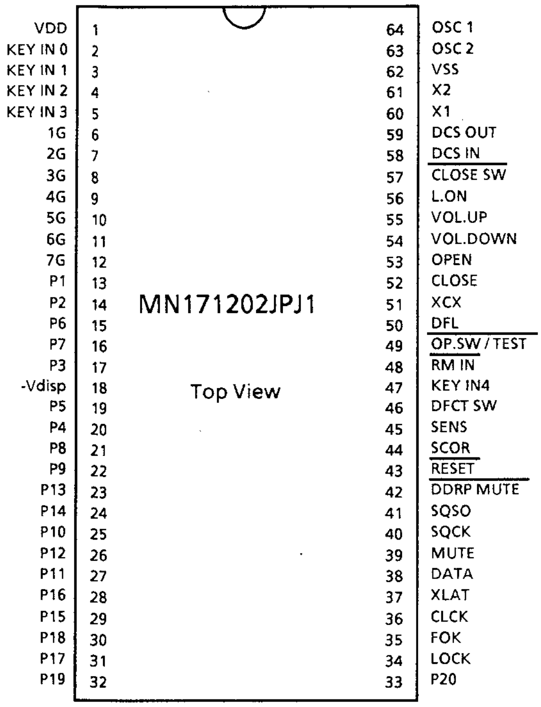
CLASS 1
LASER PRODUCT

CLASSIFICATION LABEL

Description of Major LSIs

■ MN171202JPJ1(IC201) : CD SYSTEM CONTROLLER

1. Terminal Layout


VDD 1
KEY IN 0 2
KEY IN 1 3
KEY IN 2 4
KEY IN 3 5
1G 6
2G 7
3G 8
4G 9
5G 10
6G 11
7G 12
P1 13
P2 14
P6 15
P7 16
P3 17
-Vdisp 18
P5 19
P4 20
P8 21
P9 22
P13 23
P14 24
P10 25
P12 26
P11 27
P16 28
P15 29
P18 30
P17 31
P19 32
64 OSC 1
63 OSC 2
62 VSS
61 X2
60 X1
59 DCS OUT
58 DCS IN
57 CLOSE SW
56 L.ON
55 VOL.UP
54 VOL.DOWN
53 OPEN
52 CLOSE
51 XCX
50 DFL
49 OP.SW / TEST
48 RM IN
47 KEY IN4
46 DFCT SW
45 SENS
44 SCOR
43 RESET
42 DDRP MUTE
41 SQSO
40 SQCK
39 MUTE
38 DATA
37 XLAT
36 CLCK
35 FOK
34 LOCK
33 P20
MN171202JPJ1
Top View

2. Key Matrix

	KEY IN 0 (PIN 2)	KEY IN 1 (PIN 3)	KEY IN2 (PIN 4)	KEY IN3 (PIN 5)	KEY IN4 (PIN 47)
1G (PIN 6)	OPEN / CLOSE	REPEAT ALL / 1	PROG	CANCEL	+ 10
2G (PIN 7)	EDIT	SIDE A/B	DDRP	RANDOM	▶/❚❚
3G (PIN8)	1	2	3	4	5
4G (PIN 9)	6	7	8	9	10
5G (PIN 10)	11	12	13	14	15
6G (PIN 11)	16	17	18	19	20
7G (PIN12)	◀◀	▶▶	⏮	⏭	■

3. Pin Functions

Pin NO.	symbol	I/O	Function	Pin NO.	symbol	I/O	Function
1	VDD	--	FL grid control output	33	P20	O	FL segment control output
2	KEY IN 0	I	Key matrix input	34	LOCK	I	Lock signal input
3	KEY IN 1	I	〃	35	FOK	I	FOK signal input
4	KEY IN 2	I	〃	36	CLOK	O	Clock signal for serial data transfer .
5	KEY IN 3	I	〃	37	XLAT	O	Latch signal for serial data transfer
6	1G	O	FL grid control output	38	DATA	O	Serial data output
7	2G	O	〃	39	MUTE	O	Muting signal output
8	3G	O	〃	40	SQCK	O	Clock output for reading SQSO
9	4G	O	〃	41	SQSO	O	80-bit Sub Q and 16-bit PCM Peak Level Data
10	5G	O	〃	42	DDRP MUTE	O	Mute signal output
11	6G	O	〃	43	RESET	I	Reset signal input
12	7G	O	〃	44	SCOR	I	Turns "H" when Sub code S0 or S1 is detected
13	P1	O	FL segment control output	45	SENS	I	Sense signal input
14	P2	O	〃	46	DFCT SW	O	Signal that goes "H" during focus serching
15	P6	O	〃	47	KEY IN4	I	Key matrix input
16	P7	O	〃	48	RM IN	I	Remote control signal input
17	P3	O	〃	49	OP.SW/ TEST	I	"L" with tray open / Entering test mode with TEST(L)
18	-Vdisp	--	Power supply for FL display	50	DFL	I	Digital Filter Latch signal output
19	P5	O	FL segment control output	51	XCX	--	This is "H" when the tracking loop is OFF
20	P4	O	〃	52	CLOSE	O	"CLOSE" signal output
21	P8	O	〃	53	OPEN	O	"OPEN" signal output
22	P9	O	〃	54	VOL.DOWN	O	Volume down signal output
23	P13	O	〃	55	VOL.up	O	Volume up signal output
24	P14	O	〃	56	L.ON	O	Laser control signal
25	P10	O	〃	57	CLOSE SW	I	"L" with tray closed
26	P12	O	〃	58	DCS IN	I	Compulink signal input
27	P11	O	〃	59	DCS OUT	O	Compulink signal output
28	P16	O	〃	60	X1	I	Connected to GND
29	P15	O	〃	61	X2	O	Non connection
30	P18	O	〃	62	VSS	--	Connected to GND
31	P17	O	〃	63	OSC 2	O	Clock oscillation output
32	P19	O	〃	64	OSC 1	I	Clock oscillation input

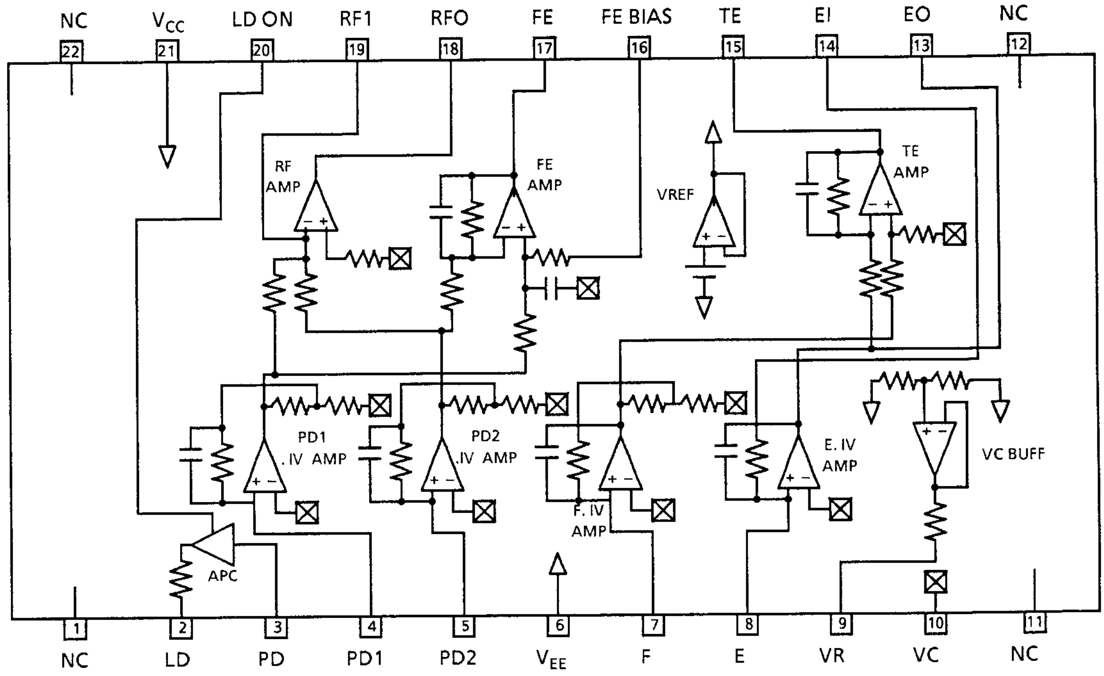
■ CXA1571S(IC501) : RF AMP FOR COMPACT DISC

1.Outline

The CXA1571S IC for compact disc 3-point method optical pickup output has the following functions.

·RF amplifier · Focus error amp · Tracking error · APC circuit

2. Internal Block Diagram


NC
22
V_{CC}
21
LD ON
20
RF1
19
RFO
18
FE
17
FE BIAS
16
TE
15
EI
14
EO
13
NC
12
RF AMP
FE AMP
VREF
TE AMP
PD1 . IV AMP
PD2 .IV AMP
F. IV AMP
E. IV AMP
VC BUFF
APC
1
NC
2
LD
3
PD
4
PD1
5
PD2
6
V_{EE}
7
F
8
E
9
VR
10
VC
11
NC

3. Pin Functions

Pin No.	Symbol	I/O	Function
2	LD	O	APC amp output pin.
3	PD	I	APC amp input pin.
4 5	PD1 PD2	I I	RF I-V amp inverted input pins; they are connected to the A + C and B + D pins of the photodiode and receive current input.
7 8	F-IN E-IN	I I	F and E I-V amp inverted input pins; they are connected to Photodiodes F and E and receive current input.
9	VR	O	$(V_{CC} + V_{EE}) / 2$ DC voltage output pin.
10	VC	I	VC intermediate voltage input pin; when dual ± 5V power supplies are used, this pin is connected to GND; for a single + 5V power supply, it is connected to the VR pin.
13	EO	O	Monitor output pin for I-V amp E.
14	EI	I	Gain adjustment pin for I-V amp E.
15	TE	O	Tracking error amp output pin.
16	FE-BIAS	I	Bias adjustment pin for the non-inverted side of the focus error amp.
17	FE	O	Focus error amp output pin.
18	RF O	O	RF amp output pin.
19	RF I	I	RF inverted side input pin; the resister connected between this pin and the RFO pin determines the gain of theRF amp.
20	LD-ON	I	This pin switches the APC amp on / off: on for VCC, off for ground.
21	VCC	-	Power supply

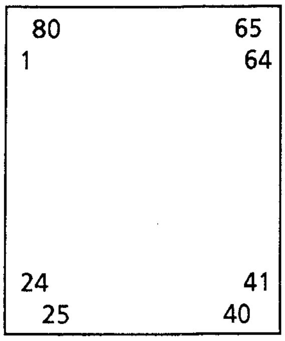
■ CDX2500AQ(IC401) : DIGITAL SIGNAL PROCESSOR

1. Outline

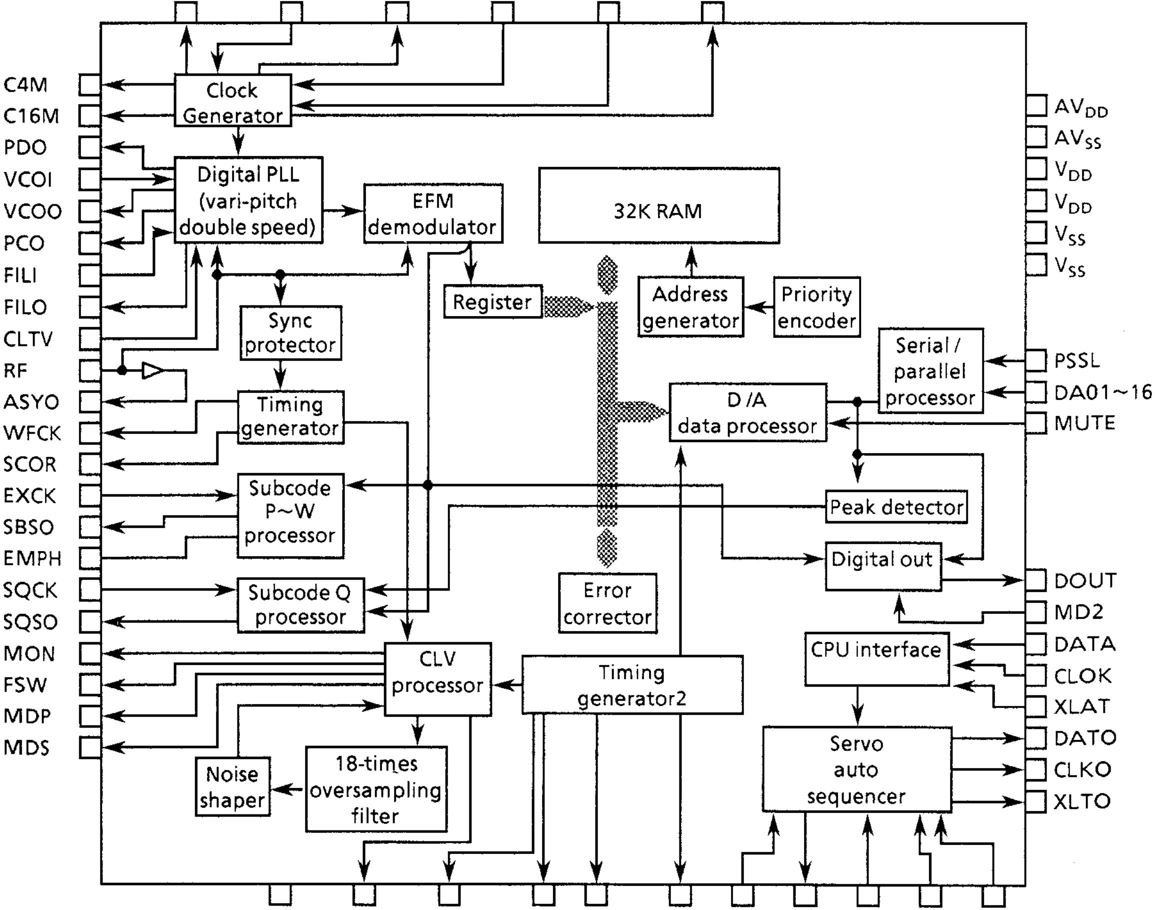
The CDX2500AQ is a digital signal processsing LSI designed for use in compact disc players. It has the following functions:

- All digital signals for regeneration are processed using one chip.
- The built-in RAM enables high-integration mounting.
- Generation by the use of a digital PLL of bit clock pulses for strobing the EFM signal.
- EFM data demodulation
- Subcode demodulation and subcode Q data error detection
- Digital spindle servo system (incorporating an oversampling filter)

2.Terminal Layout


80
65
1
64
24
41
25
40

3.Block Diagram


FSTT
XTAI
XTAO
XTSL
VCKI
VPCO
C4M
C16M
PDO
VCOI
VCOO
PCO
FILI
FILO
CLTV
RF
ASYO
WFCK
SCOR
EXCK
SBSO
EMPH
SQCK
SQSO
MON
FSW
MDP
MDS
Clock Generator
Digital PLL (vari-pitch double speed)
EFM demodulator
32K RAM
Register
Address generator
Priority encoder
Sync protector
Timing generator
Serial / parallel processor
D /A data processor
Subcode P~W processor
Peak detector
Digital out
Subcode Q processor
Error corrector
CPU interface
CLV processor
Timing generator2
Servo auto sequencer
Noise shaper
18-times oversampling filter
AV$_{DD}$
AV$_{SS}$
V$_{DD}$
V$_{DD}$
V$_{SS}$
V$_{SS}$
PSSL
DA01~16
MUTE
DOUT
MD2
DATA
CLOK
XLAT
DATO
CLKO
XLTO
XRST
LOCK
APTR
APTL
LRCK
WDCK
SEIN
SENS
CNIN
FOK
MIRR

Notes:

- The data at the 64-bit slot is output in 2's complements on an LSB-first basis. The data at the 48-bit slot is output in 2's complements on an MSB-first basis.
- GTOP monitors the state of Frame Sync protection. ("H" : Sync protection window released)
- XUFG is a negative Frame Sync pulse obtained from the EFM signal before Frame Sync protection is effected.
- XPLCK is an inversion of the EFM PLL clock. The PLL is designed so that the falling edge of XPLCK coincides with a change point of the EFM signal.
- The GFS signal turns "H" upon coincidence between Frame Sync and the timing of interpolation protection.
- RFCK is a signal generated at 136-μs periods using a crystal oscillator.
- C2PO is a signal to indicate a data error.
- XRAOF is a signal issued when a jitter margin of ± 28F is exceeded by the 32K RAM.

4. Pin Functions

Pin No.	Symbol	I/O	Function
1	FOK	I	Focus OK input pin. Used for SENS output and servo auto sequencer.
2	FNW	O	Non connection
3	MON	O	Output for spindle motor ON / OFF control.
4	MDP	O	Output for spindle servo control.
5	MDS	O	Output for spindle servo control (Non connection).
6	LOCK	O	This terminal is "H"when the GFS signal sampled at 460Hz is "H".It turns "L" when the GFS signal turns out "L" 8 or more times in succession.
7~9	—	--	Non connection
10	TEST	I	Test pin (Normally at 0V)
11	PDO	O	Output of charge pump for analog EFM PLL (Non connection).
12	Vss	--	GND
13~16	—	--	Non connection
17	VCKI	O	Clock input from external VCO for vari-pitch control.fc = 16.9344MHz.
18	FILO	O	Output of filter for masterPLL (Slave = Digital PLL)
19	FILI	I	Input to filter for master PLL.
20	PCO	O	Output of charge pump for master PLL.
21	AVss		Analog GND
22	CLTV	I	VCO control voltage input for master PLL.
23	AV_{DD}	--	Analog power supply
24	RF	I	EFM signal input
25	TEST2	I	TEST pin (Connected to GND)
26	TEST3	I	TEST pin (Connected to GND)
27	ASYO	O	EFM full-swing output
28	TEST4	I	TEST pin (Connected to GND)
29	NC	--	Non connection
30	PSSL	I	Input used to switch the audio data output mode."L" for serial output,"H" for parallel output.
31	WDCK	O	D / A interface for 48-bit slot. Word clock f = 2Fs.
32	LRCK	O	D / A interface for 48-bit slot. LR clock f = Fs.
33	V_{DD}	--	Power supply
34	DA16	O	Output DA16(MSB) when PSSL = 1 or serial data from 48-bit slot(2's completements,MSB first) when PSSL = 0.
35	DDA15	O	Output DA15 when PSSL = 1 or bit clock from 48-bit slot when PSSL = 0.
36~51	—	--	Non connection
52	VSS	--	GND
53	XTAI	I	Input to 16.9344MHz Xtal oscillation circuit or 33.8688MHz input.
54	XTAO	O	Output of 16.9344 MHz Xtal oscillation circuit.
55	XTSL	I	Xtal selection input pin. "L" for 16,344MHz Xtal, "H" for 33.8688 MHz Xtal.
56~58			Non connection
59	MD2	I	Digital-Out ON/OFF control. "H" for ON, "L" for OFF.
60	DOUT	O	Digital-Out output pin.
61,62	—	--	Non connection
63	SCOR	O	Turns "H" when subcode Sync S0 or S1 is detected.
64	SBSO	O	Serial output of Sub P to W.
65	EXCK	I	Clock input for reading SBSO.
66	SQSO	O	Outputs 80-bit Sub Q and 16-bit PCM peak-level data.
67	SQCK	I	Clock input for reading SQSO.
68	MUTE	I	"H" for muting, "L" for release.
69	SENS	--	SENS output to CPU.
70	XRST	I	System reset. "L" for resetting.
71	DATA	I	Inputs serial data from CPU.
72	XLAT	I	Latches serial data input from CPU at falling edge.
73	V_{DD}	--	Power supply(+ 5V)
74	CLOK	I	Inputs serial data transfer clock from CPU.
75	SEIN	I	Inputs SENSE from SSP.
76	CNIN	I	Inputs track jump count signal.
77	DATO	O	Outputs serial data to SSP.
78	XLYTO	O	Latches serial data output to SSP at falling edge.
79	CLKO	O	Outputs serial data transfer clock to SSP.
80	MIRR	I	Inputs mirror signal to be used by auto sequencer when jumping 128 or more tracks.

■ CXA1372S (IC601) : RF SIGNAL PROCESSING SERVO AMPLIFIER

1.Outline

The CXA1372S is a bipolar IC developed for RF signal processing (focus OK, mirror, defect detection, EFM comparator) and servo control.

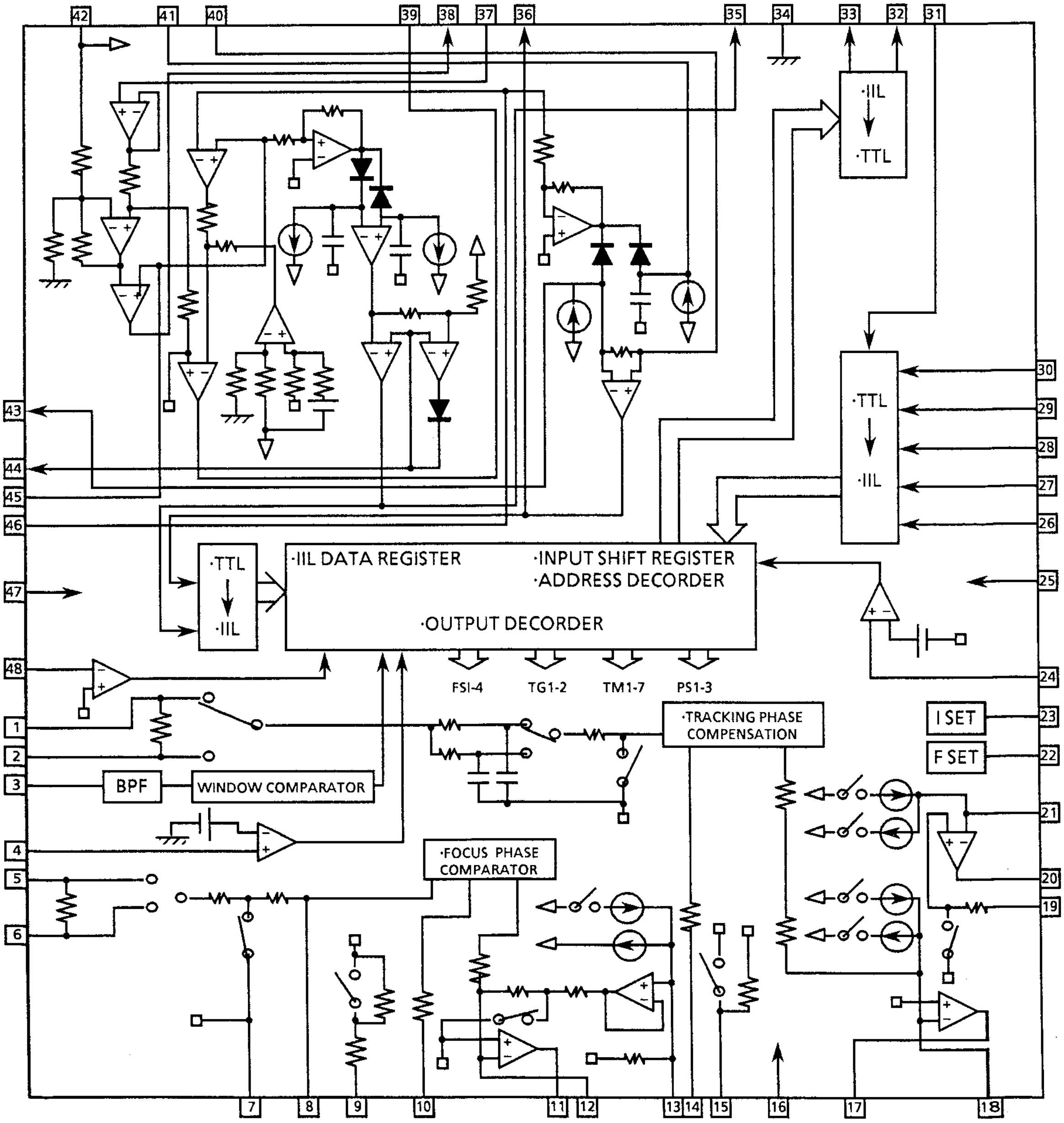
2.Functions

- Auto asymmetry control
- Focus OK detection circuit
- Mirror detection circuit
- Defects detection, counter measures circuit
- EFM comparator
- Focus servo control
- Tracking servo control
- Sled servo control

3.Terminal Layout

TE	1	48	TZC
TDFCT	2	47	DVEE
ATSC	3	46	RFO
FZC	4	45	RFI
FE	5	44	CP
FDFCT	6	43	CB
VC	7	42	DVCC
FGD	8	41	CC2
FS3	9	40	CC1
FLB	10	39	FOK
FEO	11	38	EFM
FE –	12	37	ASY
SRCH	13	36	DFCT
TGU	14	35	MIRR
TG2	15	34	DGND
AVCC	16	33	SENS
TAO	17	32	C.OUT
TA –	18	31	XRST
SL +	19	30	DATA
SLO	20	29	XLT
SL –	21	28	CLK
FSET	22	27	LOCK
ISET	23	26	DIRC
SSTOP	24	25	AVEE

4.Internal Block Diagram


42
41
40
39
38
37
36
35
34
33
32
31
·IIL
·TTL
·TTL
·IIL
30
29
28
27
26
25
24
23
22
21
20
19
43
44
45
46
47
48
1
2
3
4
5
6
·TTL
·IIL
·IIL DATA REGISTER
·INPUT SHIFT REGISTER
·ADDRESS DECORDER
·OUTPUT DECORDER
FSI-4
TG1-2
TM1-7
PS1-3
·TRACKING PHASE COMPENSATION
I SET
F SET
BPF
WINDOW COMPARATOR
·FOCUS PHASE COMPARATOR
7
8
9
10
11
12
13
14
15
16
17
18

5.Pin Functions

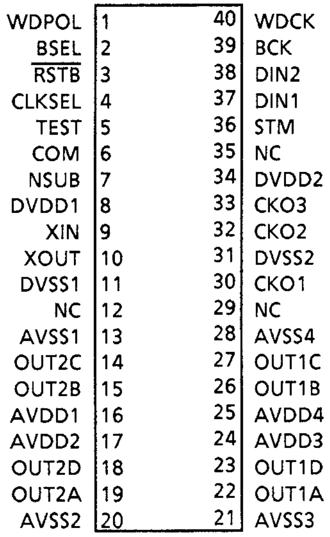
Pin No	Symbol	I/O	Function
1	TE	I	Input pin of tracking error amplifier.
2	TDFCT	I	Capacitor connecting pin for time constant during defects.
3	ATSC	I	Window comparator input pin for ATSC detection.
4	FZC	I	Pin for focus zero-cross comparator input.
5	FE	I	Input pin of focus error.
6	FDFCT	I	Capacitor connecting pin for time constant during defect functions.
7	VC	I	Center voltage input pin. For dual power: GND For single power supply: (VCC + GND)/2
8	FGD	I	Connect a capacitor between this pin and pin3 to reduce high-frequency gain.
9	FS3	I	The high-frequency gain of the focus servo is switched through FS3 ON and OFF.
10	FLB	I	Time constant external pin to raise the low bandwidth of the focus servo.
11	FEO	O	Focus drive output.
12	FE-	I	Inverse input for focus amplifier.
13	SRCH	I	Time constant external pin for formation of focus search waveform.
14	TGU	I	Time constant external pin for the selection of tracking high band gain.
15	TG2	I	Time constant external pin for the selection of tracking high band gain.
16	AVCC	--	Power supply
17	TAO	O	Tracking drive output.
18	TA-	I	Inverse input pin for tracking amplifier.
19	SL +	I	Non- inverse input pin for sled amplifier.
20	SLO	O	Sled drive output.
21	SL-	I	Inverse input pin for sled amplifier.
22	F SET	I	Pin to set peak frequency of focus tracking phase compensation and fo of CLV LPF.
23	I SET	I	Current is input to determine focus search, track jump, and sled kick height.
24	S STOP	I	Limit SW ON/OFF signal detection pin for disc inner periphery detection.
25	AVEE	--	– 5V
26	DIRC	I	Pin for one-track jump. Contains 47kΩpull-up resistor.
27	LOCK	I	At "L" sled runaway prevention circuit operate. Contains a 47kΩpull-up resistor.
28	CLK	I	Serial data transfer clock input from CPU.
29	XLT	I	Latch input from CPU.
30	DATA	I	Serial data input from CPU.
31	XRST	I	Reset input pin, reset at "L".
32	C.OUT	O	Track number count signal output.
33	SENS	O	Outputs FZC, AS, TZC and S STOP through command from CPU.
34	DGND	--	GND
35	MIRR	O	MIRR comparator output pin.
36	DFCT	O	Output pin of DEFECT comparator.
37	ASY	I	Input pin of auto asymmetry control.
38	EFM	O	Output pin of EFM comparator.
39	FOK	O	Output pin of FOK comparator.
40	CC1	I	Output pin of DEFECT bottom hold.
41	CC2	O	Input pin for the capacitance coupled output of DEFECT bottom hold.
42	DVCC	--	– 5V
43	CB	I	Connection pin of DEFECT bottom hold capacitor.
44	CP	I	Connecting pin of MIRR hold condenser. Non-inverted input pin of MIRR comparator.
45	RFI	I	Input pin with coupling capacitor where RF summing amplifier output is connected.
46	RFO	O	Output pin of RF summing amplifier and check point of eye pattern.
47	DVEE	--	– 5V
48	TZC	I	Input pin of tracking zero-cross comparator.

■JCE4501(IC302) : D / A CONVERTER

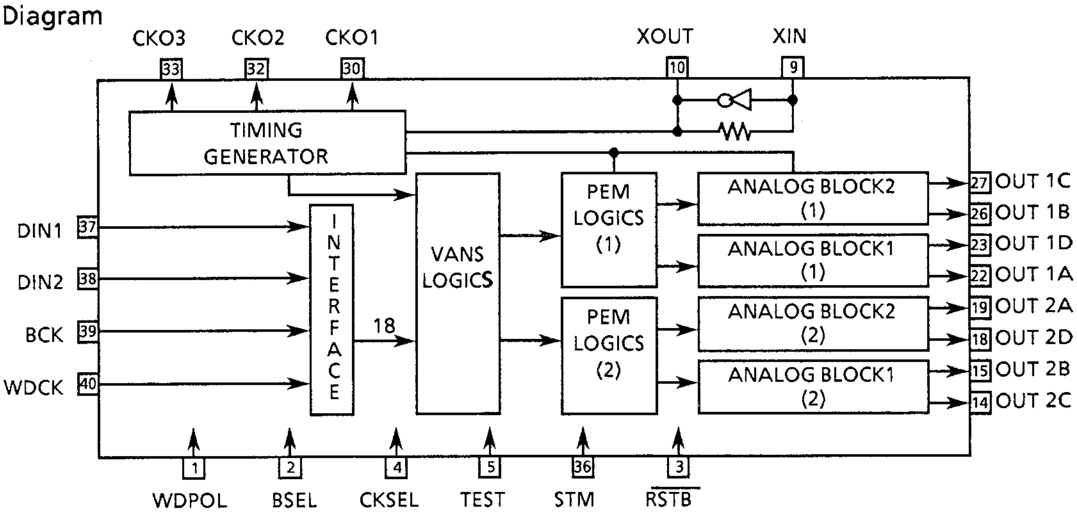
1. Outline

The JCE4501 is a CMOS digital-analog converter with independent left and right channels. It was developed for PCM digital audio equipment. It features pulse edge modulation (PEM) and Victor advanced noise shaping (VANS) for resolution equipment to 20 bits(0-20kHz) and a low distortion ratio. At JVC, this type of digital-analog converter is called a DD converter.

2. Terminal Layout


WDPOL 1
BSEL 2
RSTB 3
CLKSEL 4
TEST 5
COM 6
NSUB 7
DVDD1 8
XIN 9
XOUT 10
DVSS1 11
NC 12
AVSS1 13
OUT2C 14
OUT2B 15
AVDD1 16
AVDD2 17
OUT2D 18
OUT2A 19
AVSS2 20
40 WDCK
39 BCK
38 DIN2
37 DIN1
36 STM
35 NC
34 DVDD2
33 CKO3
32 CKO2
31 DVSS2
30 CKO1
29 NC
28 AVSS4
27 OUT1C
26 OUT1B
25 AVDD4
24 AVDD3
23 OUT1D
22 OUT1A
21 AVSS3

3. Block Diagram

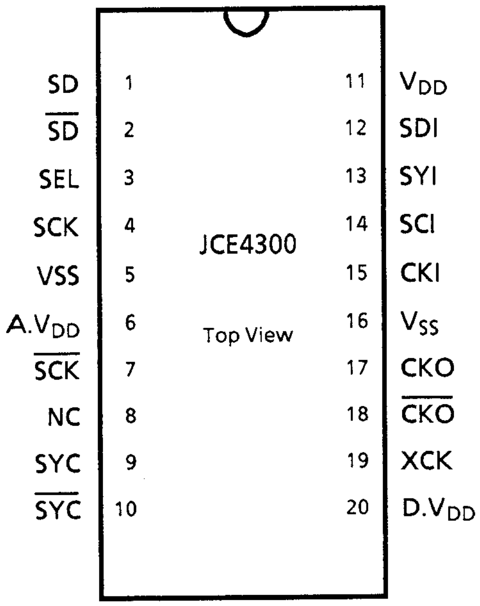

CKO3 33
CKO2 32
CKO1 30
XOUT 10
XIN 9
TIMING GENERATOR
DIN1 37
DIN2 38
BCK 39
WDCK 40
INTERFACE
18
VANS LOGICS
PEM LOGICS (1)
PEM LOGICS (2)
ANALOG BLOCK2 (1)
ANALOG BLOCK1 (1)
ANALOG BLOCK2 (2)
ANALOG BLOCK1 (2)
27 OUT 1C
26 OUT 1B
23 OUT 1D
22 OUT 1A
19 OUT 2A
18 OUT 2D
15 OUT 2B
14 OUT 2C
1 WDPOL
2 BSEL
4 CKSEL
5 TEST
36 STM
3 RSTB

4. Pin Functions

Pin No	Symbol	I/O	Function	Pin No	Symbol	I/O	Function
1	WDPOL	I	Word data polarity switching pin	21	AVSS3	--	Analog ground pin 3
2	BSEL	I	H:CDX2554P format,L: YM3414 format	22	OUT1A	O	1A PEM output pin
3	RSTB	I	Reset pin (low active)	23	OUT1D	O	1D PEM output pin
4	CLKSEL	I	H: 256Fs mode,L: 384Fs mode	24	AVDD3	--	Analog power supply pin 3
5	TEST	I	Test mode switching pin	25	AVDD4	--	Analog power supply pin 4
6	COM	I	COM board voltage fastening pin	26	OUT1B	O	1B PEM output pin
7	NSUB	I	Silicon board voltage fastening pin	27	OUT1C	O	1C PEM output pin
8	DVDD1	--	Digital power supply pin 1	28	AVSS4	--	Analog ground pin 4
9	XIN	I	Crystal oscillator input pin	29	NC	--	To ground
10	XOUT	O	Crystal oscillator output pin	30	CKO1	O	Clock output pin 1(384Fs output)
11	DVSS1	--	Digital ground pin 1	31	DVSS2	--	Digital ground pin 2
12	NC	--	To ground	32	CKO2	O	Clock output pin 2(192Fs output)
13	AVSS1	--	Analog ground pin 1	33	CKO3	O	Clock output pin 3(128fFs output)
14	OUT2C	O	2C PEM output pin	34	DVDD2	--	Digital power supply pin 2
15	OUT2B	O	2B PEM output pin	35	NC	--	Non connection
16	AVDD1	--	Analog power supply pin 1	36	STM	I	Stereo/monaural switching pin. H:stereo,L:left channel,reversed polarity left channel
17	AVDD2	--	Analog power supply pin 2	37	DIN1	I	Left channel 18-bits 8Fs serial data input
18	OUT2D	O	2D PEM output pin	38	DIN2	I	Right channel 18-bits 8Fs serial data input
19	OUT2A	O	2A PEM output pin	39	BCK	I	Bit clock input pin
20	AVSS2	--	Analog ground pin 2	40	WDCK	I	Word clock input pin

■ JCE4300 (IC431) : Gate Array for K2 Interface

1. Terminal Layout

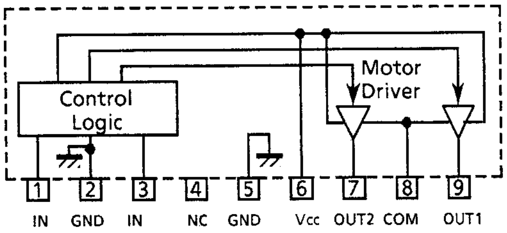

SD 1
$\overline{SD}$ 2
SEL 3
SCK 4
VSS 5
A.V$_{DD}$ 6
$\overline{SCK}$ 7
NC 8
SYC 9
$\overline{SYC}$ 10
11 V$_{DD}$
12 SDI
13 SYI
14 SCI
15 CKI
16 V$_{SS}$
17 CKO
18 $\overline{CKO}$
19 XCK
20 D.V$_{DD}$
JCE4300
Top View

2. Pin Functions

Pin No	Symbol	I/O	Function
1	SD	O	Data output terminal which changed the format.
2	$\overline{SD}$	O	Inverted SD output. (not used)
3	SEL	I	Terminal which selects inner operation's logic against reference clock.
4	SCK	O	Bit clock output terminal for taking in SD.
5	Vss	-	This is not connected inside with pin 15 of ground terminal.
6	A.V$_{DD}$	-	+5V power supply for analog.
7	$\overline{SCK}$	O	Inverted SCK output terminal. (not used)
8	NC	-	————
9	SYC	O	Signal output terminal which changes L/R channels.
10	$\overline{SYC}$	O	Inverted SYC output. (not used)
11	V$_{DD}$	-	+5V power supply.
12	SDI	I	Serial data input terminal.
13	SYI	I	Signal input terminal which changes L/R channel. It becomes L channel when "H" and R channel when "L".
14	SCI	I	Bit synchronous clock serial data.
15	CKI	I	Input terminal of reference clock.
16	VSS	-	This is not connected inside with pin 15 of ground terminal.
17	CKO	O	Reference clock output terminal. (16.9344MHz) It's a buffered CKI.
18	$\overline{CKO}$	O	Inverted CKO output terminal. (not used)
19	XCK	O	Not used.
20	D.VDD	-	+5V power supply for digital.

■ BA6218 (IC351) : Motor Driver

1. Terminal Layout & Internal Block Diagram


Control Logic
Motor Driver
1 IN
2 GND
3 IN
4 NC
5 GND
6 Vcc
7 OUT2
8 COM
9 OUT1

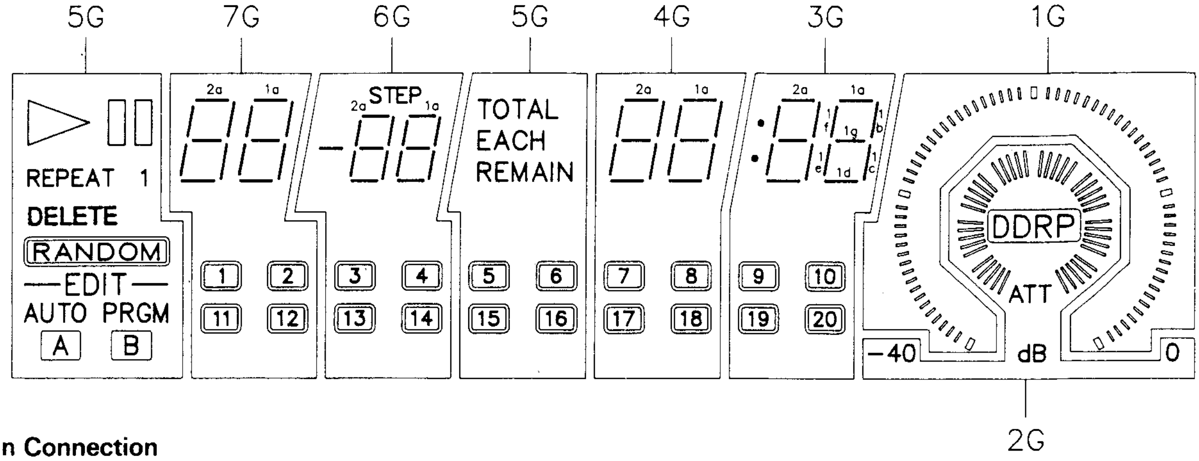
2. Function Table

3pin (IN)	1pin (IN)	7pin (OUT)	9pin (OUT)
H	L	L	H
L	H	H	L
H	H	L	L
L	L	OPEN	OPEN

Note : "H" is more than 2.0V.
"L" is less than 0.8V.

Internal Connection for the FL Display Tube

■ Grid Assignment

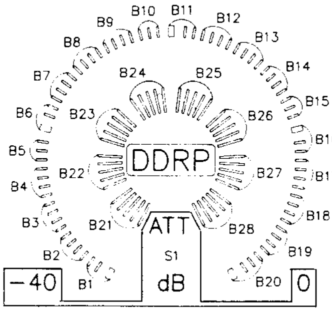

5G
7G
6G
5G
4G
3G
1G
REPEAT 1
DELETE
RANDOM
—EDIT—
AUTO PRGM
A
B
2a
1a
STEP
TOTAL
EACH
REMAIN
1g
1d
DDRP
ATT
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
−40
dB
0
2G

■ Pin Connection

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
CONNECTION	F1	F1	NP	NP	P1	P2	P6	P7	P3	P5	P4	P8	P9	P13	P14	P10	P12	P11	P16	P15	P18	P17	P19	P20	NC	NC	7G	6G	5G	4G	3G	2G	1G	NP	NP	F2	F2

NOTE 1) F1, F2 ------ Filament
2) NP -------- No pin
3) NC -------- No connection
4) 1G ~ 7G ----- Grid

■ Segment Designation

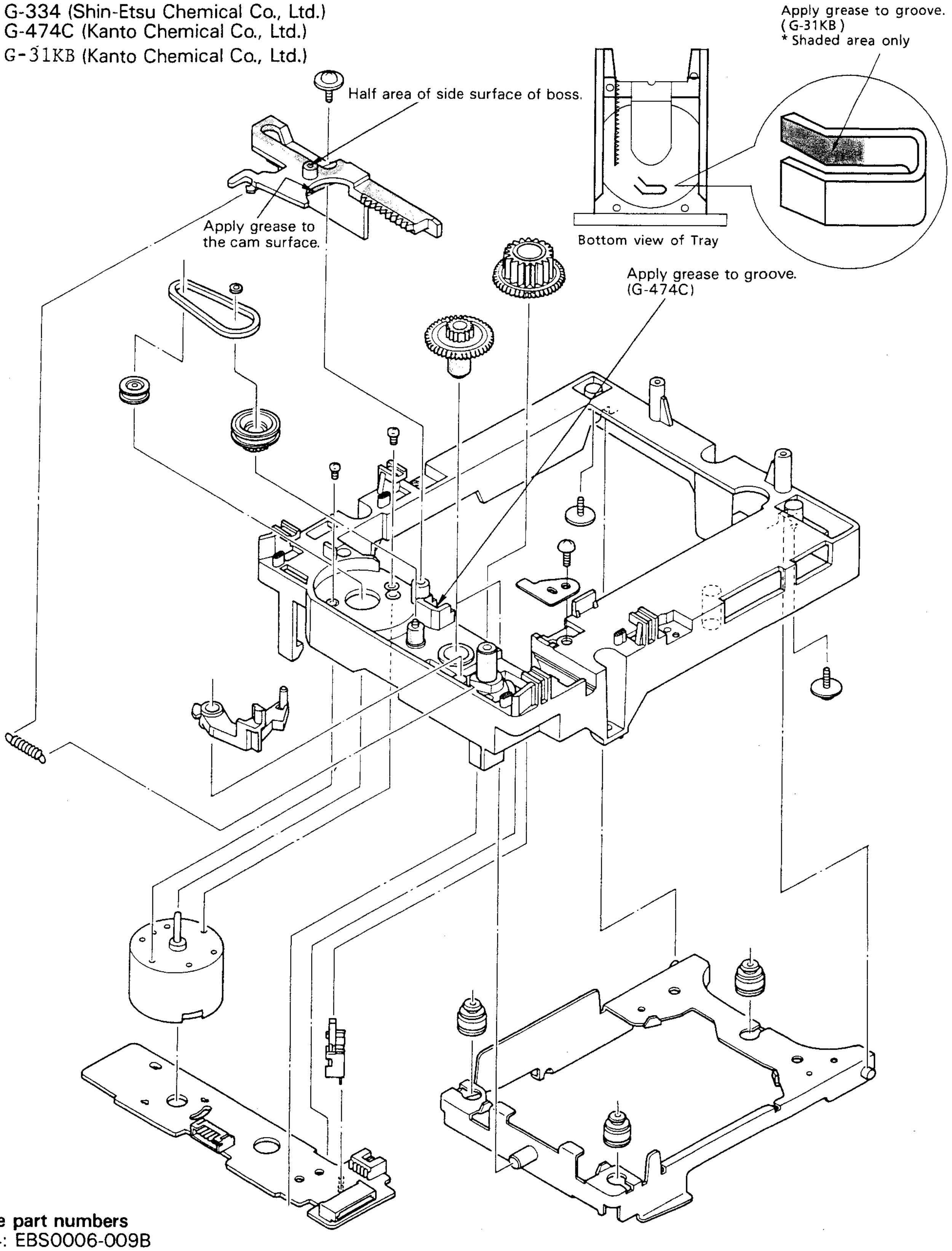

B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
B13
B14
B15
B16
B17
B18
B19
B20
B21
B22
B23
B24
B25
B26
B27
B28
DDRP
ATT
S1
dB
−40
0

■ Anode Connection

	7G	6G	5G	4G	3G	2G	1G
P1	1a	1a	TOTAL	1a	1a	–	B20
P2	1b	1b	▷	1b	1b	–	B19
P3	1c	1c	DELETE	1c	1c	–	B18
P4	1d	1d	RANDOM	1d	1d	–	B17
P5	1e	1e	EACH	1e	1e	–	B16
P6	1f	1f	REPEAT	1f	1f	–	B15
P7	1g	1g	▯▯	1g	1g	–	B14
P8	2a	2a	—EDIT—	2a	2a	–	B13
P9	2b	2b	AUTO	2b	2b	–	B12
P10	2c	2c	PRGM	2c	2c	–	B11
P11	2d	2d	B	2d	2d	S1	B10
P12	2e	2e	REMAIN	2e	2e	DDRP	B9
P13	2f	2f	1	2f	2f	B28	B8
P14	2g	2g	A	2g	2g	B27	B7
P15	1	3	5	7	9	B26	B6
P16	2	4	6	8	10	B25	B5
P17	11	13	15	17	19	B24	B4
P18	12	14	16	18	20	B23	B3
P19	–	—	–		:	B22	B2
P20	–	STEP	–	–	–	B21	B1

Application Points for Grease

Grease used
■ G-334 (Shin-Etsu Chemical Co., Ltd.)
☐ G-474C (Kanto Chemical Co., Ltd.)
▨ G-31KB (Kanto Chemical Co., Ltd.)


Apply grease to groove.
(G-31KB)
* Shaded area only
Half area of side surface of boss.
Apply grease to the cam surface.
Bottom view of Tray
Apply grease to groove.
(G-474C)

Grease part numbers
G-334: EBS0006-009B
G-474C: EBS0006-019B
G-31KB: EBS0006-013B

Disassembly Procedures

(1) Removing the top cover
1. Remove the 4 screws holding the both sides of the top cover, and the 2 screws holding the rear side of it.
2. Gently spread both sides of the top cover to the outside, lift up the rear section, and remove the top cover.

(2) Removing the tray
1. Remove the top cover.
2. Switch on the power. Press the OPEN / CLOSE switch to bring the tray forward and switch off the power.
3. Remove the screw on the tray.
4. Pull the tray toward the front.

Note: If the power does not come on due to breakdown or the like, insert a plastic screwdriver through the hole at the bottom of the front panel and turn it clockwise to bring the tray forward.

(3) Removing the mechanism assembly
1. Remove the top cover.
2. Remove the tray.
3. Remove the 2 screws Ⓐ holding the clamp assembly to remove the clamp assembly.
4. Remove the 3 screws Ⓑ holding the mechanism assembly.

(4) Removing the rear panel
1. Remove the 8 screws Ⓒ holding the rear panel.
2. Remove the rear panel.

(5) Removing the main P.C. Board (ENN-326-1)
1. Remove the top cover.
2. Remove the rear panel.
3. Remove the 4 screws Ⓓ holding the P.C.board.
4. Remove the connectors connecting with the main P.C.board.

(6) Removing the front panel assembly

Note

Remove the solid base before the front panel assembly, because it is damaged by prominent part for setting the front panel position.

1. Remove the top cover.
2. Remove the tray.
3. Remove the 2 screws Ⓔ at the bottom of the front panel.
4. Remove the connectors.
5. Release the hooks Ⓗ holding the front panel, and remove the front panel assembly.

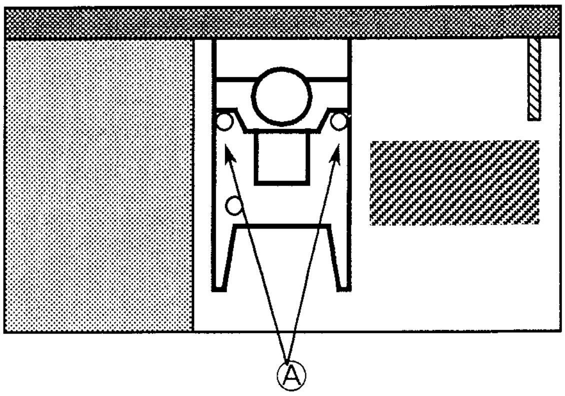


Figure 1

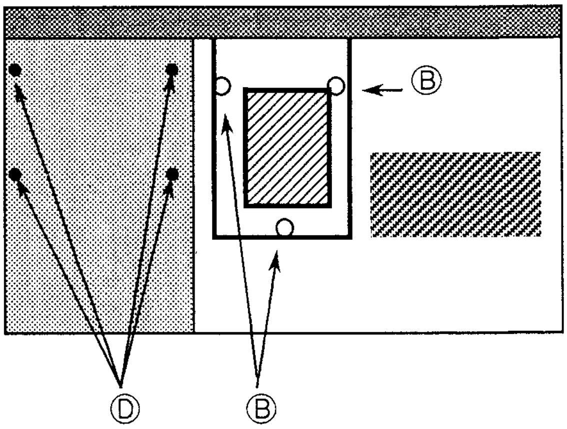


Figure 2

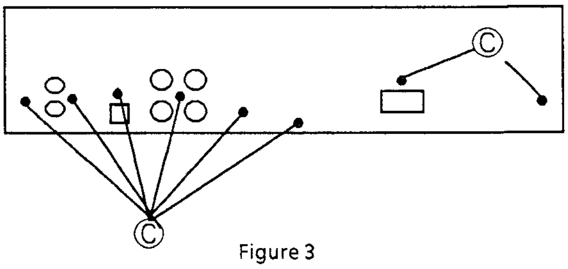


Figure 3

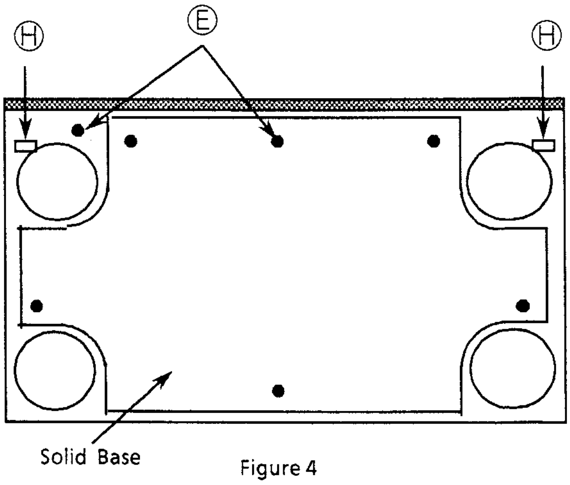


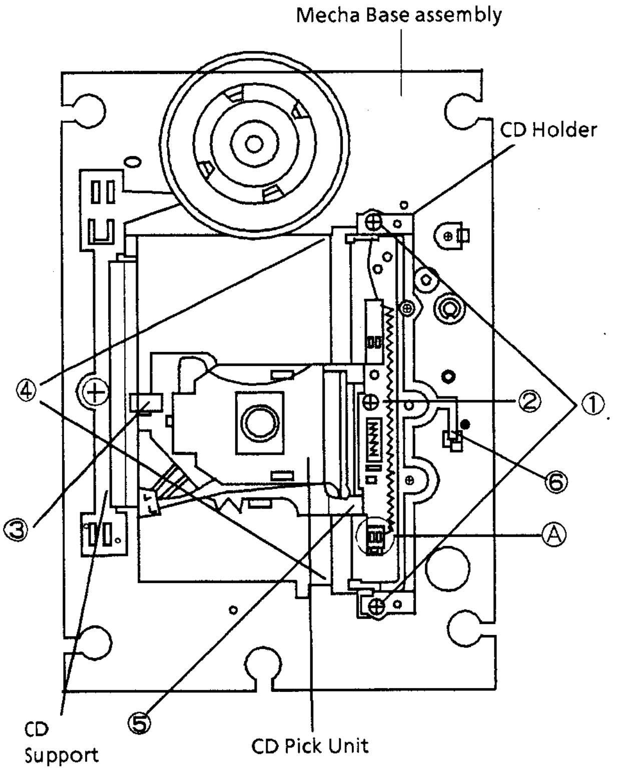
Figure 4

(7) Removing the Laser Pickup

1. Remove the top cover, tray assembly and the clamp.
2. Move the Pickup unit from rest position to the center pushing ⑤ point with finger.
3. Remove the screw ② from the CD RACK assembly, and remove the CD RACK assembly.
4. Remove the screw① from the Mecha Base assembly.
5. Remove the CD HOLDER fastening the shaft from the Mecha Base assembly.(Release the hook ⑥)
6. Remove the CD Pick Unit with the shaft.

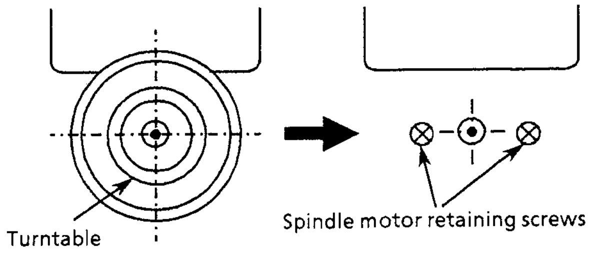
(8) Laser Pickup installation

1. Connect two wires with the connectors of APC P.C.Board.
2. While installing the ③ in the CD Support, set the shaft on the base hook④.
3. Install the CD Holder.
4. Install THE CD Rack assembly in CD Pick Unit.
   1) Fit end Ⓐ
   2) Fix screw ②.



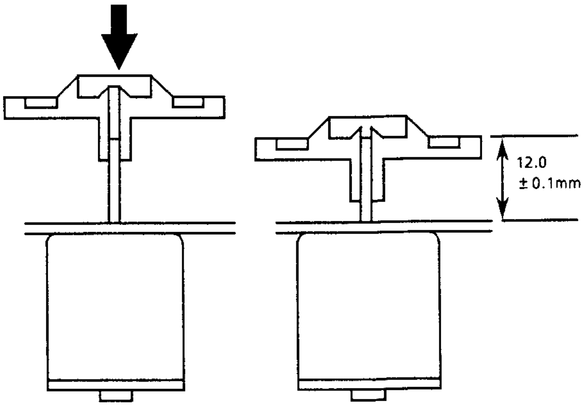
(9) Removing the spindle motor

1. Remove the Mechanism assembly.
2. Remove the turntable, and remove the two screws retaining the spindle motor.
3. Remove the screw retaining the Spindle and Feed Motor P.C. Board and unsolder it.

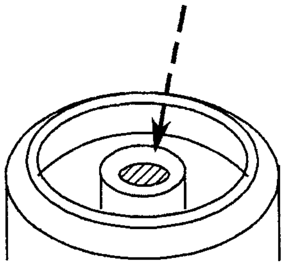


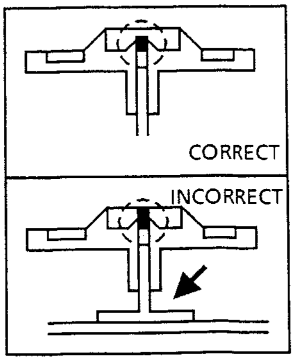
(10) Spindle motor installation

1. Tighten the 2 screws to the same torque.
2. Fasten the Spindle and Feed Motor P.C. Board with the screw and solder.
3. Install the turntable.When installing, press straight down at the center of the turntable until the distance from the surface of the mechanism base to the top of the turntable is exactly 12.0 ± 0.1mm.



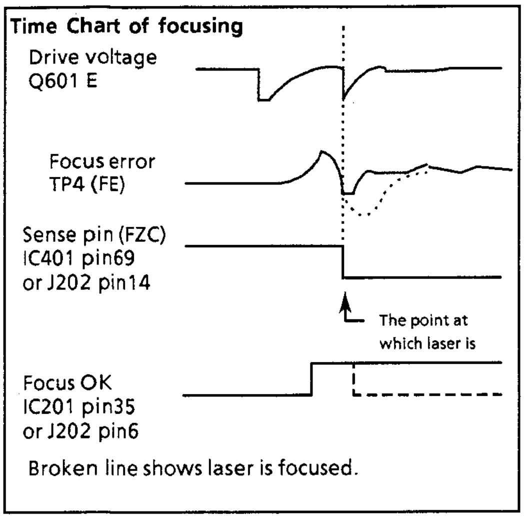
4. After insertion is complete, bond the motor shaft and turntable together (at the section marked by an arrow in the figure on the left below).



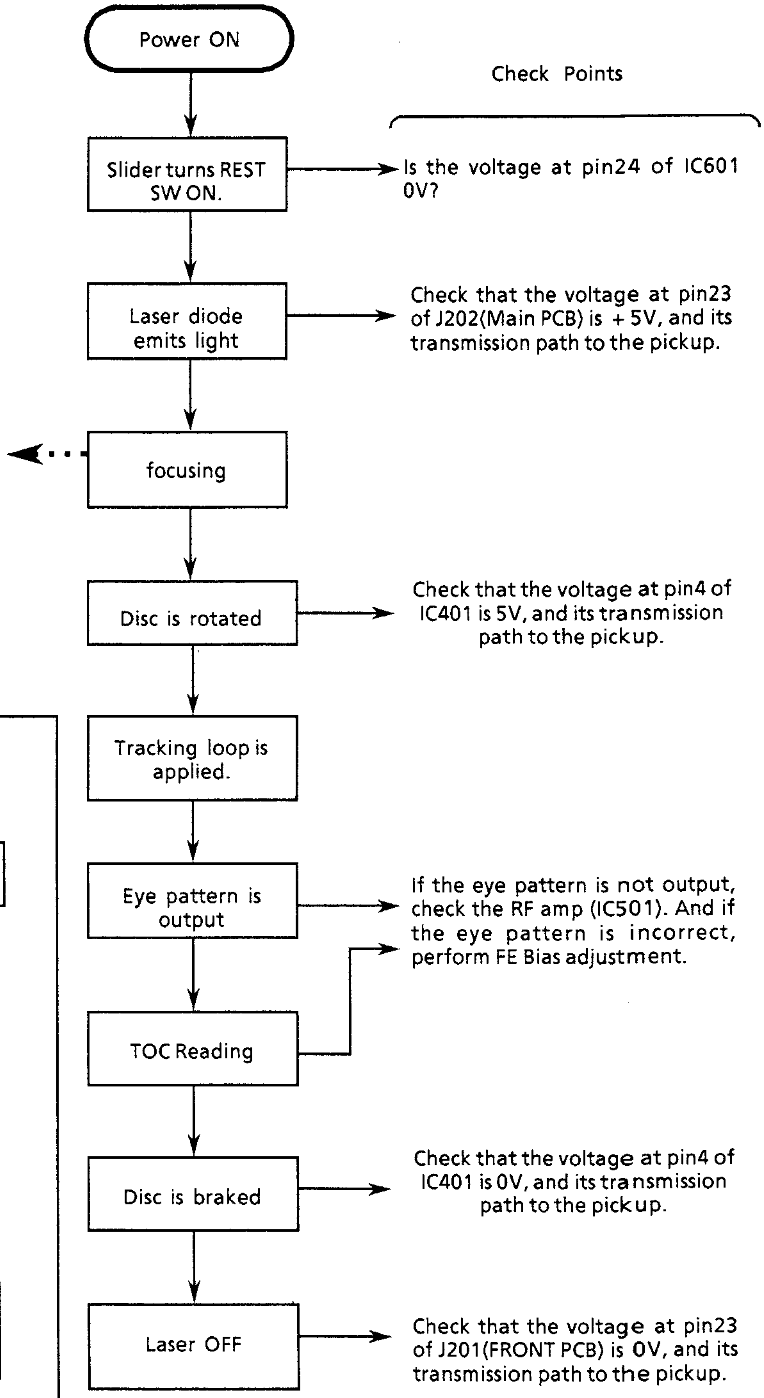


5. Use "LOCKTITE" #460 bonding agent, and apply as little as possible. Take care not to allow any excess bonding agent to get onto the turntable. Be extremely careful not to allow bonding agent to adhere to the motor bearings (the section marked by an allow in the figure on the right).

Flow of Functional Operation Until TOC is Read

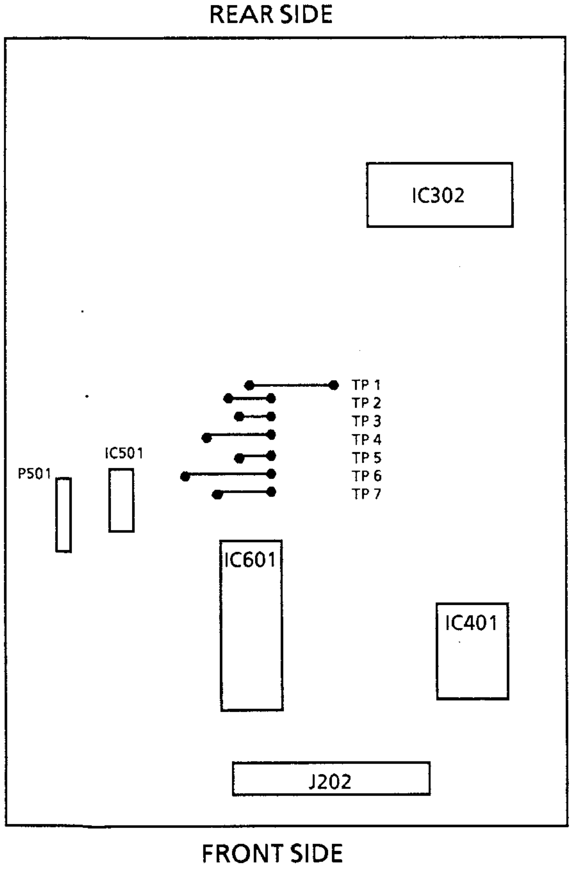


Broken line shows laser is focused.


Power ON
Slider turns REST SW ON.
Laser diode emits light
focusing
Disc is rotated
Tracking loop is applied.
Eye pattern is output
TOC Reading
Disc is braked
Laser OFF
Check Points

Check Points

- Slider turns REST SW ON. → Is the voltage at pin24 of IC601 0V?
- Laser diode emits light → Check that the voltage at pin23 of J202(Main PCB) is +5V, and its transmission path to the pickup.
- Disc is rotated → Check that the voltage at pin4 of IC401 is 5V, and its transmission path to the pickup.
- Eye pattern is output / TOC Reading → If the eye pattern is not output, check the RF amp (IC501). And if the eye pattern is incorrect, perform FE Bias adjustment.
- Disc is braked → Check that the voltage at pin4 of IC401 is 0V, and its transmission path to the pickup.
- Laser OFF → Check that the voltage at pin23 of J201(FRONT PCB) is 0V, and its transmission path to the pickup.

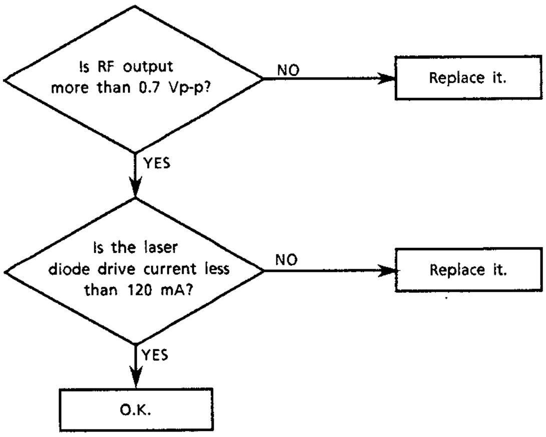

REAR SIDE
IC302
TP 1
TP 2
TP 3
TP 4
TP 5
TP 6
TP 7
IC501
P501
IC601
IC401
J202
FRONT SIDE

Maintenance of Laser Pickup

(1) Life of the laser diode

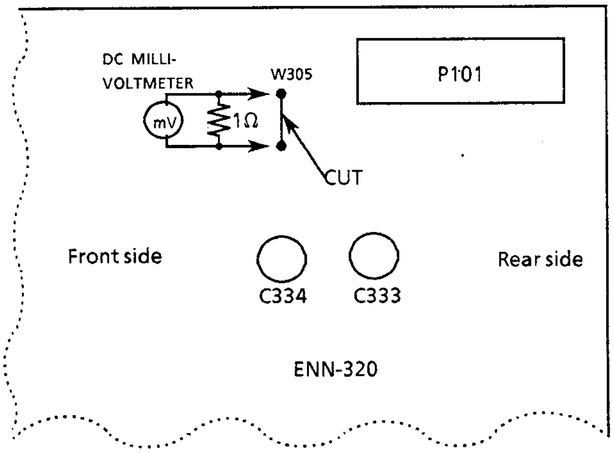
When the life of the laser diode has expired, the following symptoms will appear.

1. The level of RF output (EFM output: amplitude of eye pattern) will be low.
2. The drive current required by the laser diode will be increased.
   In such a case, check the life of the laser diode following the flowchart below


Is RF output more than 0.7 Vp-p?
NO
Replace it.
YES
Is the laser diode drive current less than 120 mA?
NO
Replace it.
YES
O.K.

(2) Measurement of laser diode drive current

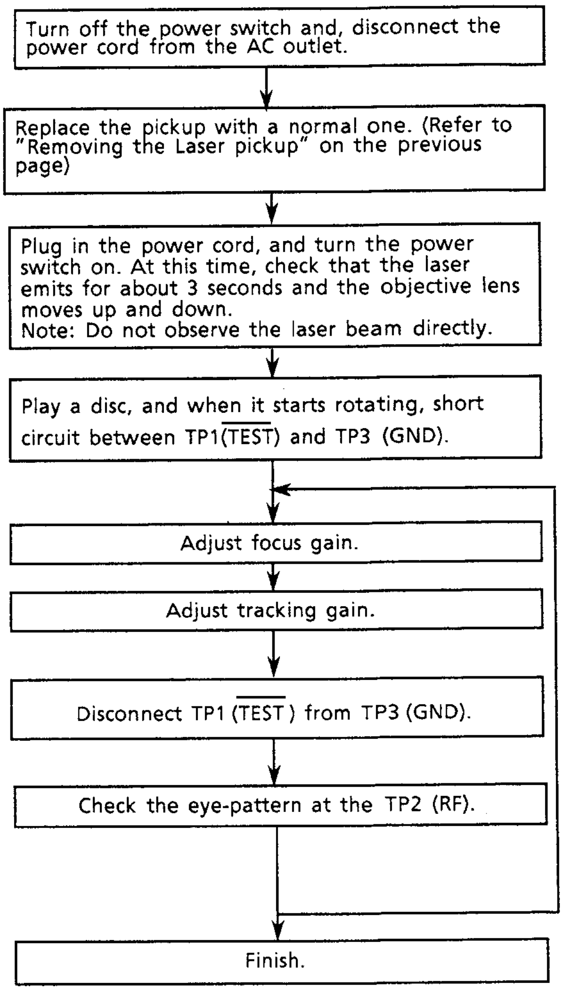
Replace the jump wire (W305) shown below with the resistor (1Ω).
Measure the voltage across the resistor with a milli-voltmeter. When the voltage is more than 120mV, it shows that the life of the laser diode has expired



(3) Semi-fixed resistor on the APC PC board

The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power. Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.
If the laser power is lower than the specified value, the laser diode is almost worn out, and the laser pickup should be replaced.
If the semi-fixed resistor is adjusted while the pickup is functioning normally, the laser pickup may be damaged due to excessive current.

Replacement of Laser Pickup



Turn off the power switch and, disconnect the power cord from the AC outlet.

Replace the pickup with a normal one. (Refer to "Removing the Laser pickup" on the previous page)

Plug in the power cord, and turn the power switch on. At this time, check that the laser emits for about 3 seconds and the objective lens moves up and down.
Note: Do not observe the laser beam directly.

Play a disc, and when it starts rotating, short circuit between TP1($\overline{\text{TEST}}$) and TP3 (GND).

Adjust focus gain.

Adjust tracking gain.

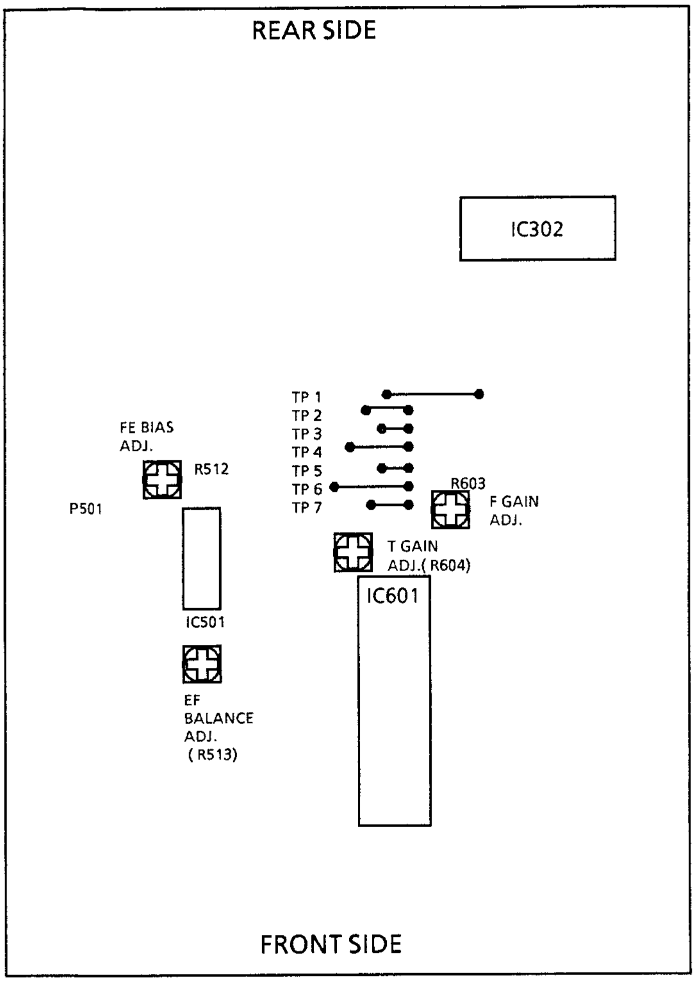
Disconnect TP1 ($\overline{\text{TEST}}$) from TP3 (GND).

Check the eye-pattern at the TP2 (RF).

Finish.

Note: Since one adjustment may affect other settings, repeat these adjustments a few times.

Adjustment Procedures


REAR SIDE
IC302
TP 1
TP 2
TP 3
TP 4
TP 5
TP 6
TP 7
FE BIAS ADJ.
R512
P501
R603
F GAIN ADJ.
T GAIN ADJ.(R604)
IC601
IC501
EF BALANCE ADJ. (R513)
FRONT SIDE

■ Adjustment instruments

Oscilloscope, Test disc (CRG-1117)

■ Adjustment Procedures

1) FE Bias check
1. Connect an oscilloscope between TP 4(FE) and TP 3(GND).
2. Adjust R512(FE bias) so that the DC voltage at TP 4 becomes 0 ± 10mV.

2) EF balance adjustment
1. Load a test disc and press the play button.
2. Short-circuit between TP 1(TEST) and TP 3(GND).
3. Adjust R513(EF balance) so that the center of the waveform at TP 6(TE) bocomes 0 ± 50mV.

3) Gain adjustment

If the gain is out of adjustment, the symptoms below will appear.

●Gain too low

Focus gain : Focus is not obtained and disc does not rotate.
Tracking gain : Mechanical shock occurs easily and sound is interrupted. Or time counter display stop counting.

●Gain too high

Focus gain : Scratches (on the disc) easily interrupt play, and noise is increased during play.
Tracking gain : Since the follow-up ability of the pickup is too high, the pickup may oscillate and oscillating sound may output.

As described above, the focus and tracking gain adjustment are performed so as to satisfy mutually contradictory characteristics.
A simplified adjustment procedure is described below. However, since exact adjustment can not be performed prior to adjustments, note(or mark) the positions of the semi-fixed VRs.
If the positions after the simplified adjustment are only different, return the VRs to their original position.

Focus gain adjustment

1. Connect an oscilloscope between TP 4(FE) and TP 3(GND).
2. Load a test disc and press the PLAY button.
3. Adjust R603(F.GAIN ADJ.) so that the correct waveform shown in figure 1 is obtained.

Tracking gain adjustment

1. Connect an oscilloscope between TP 6(TE) and TP 3(GND).
2. Load a test disc and press the PLAY button.
3. Adjust R604(T.GAIN ADJ.) so that the correct waveform shown in figure 2 is obtained.

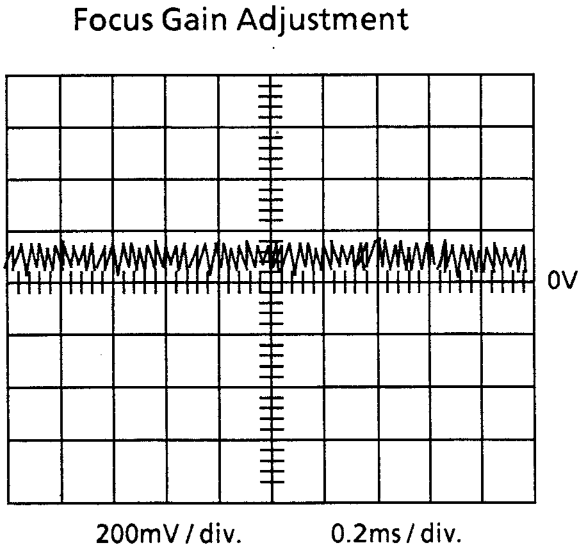


Figure. 1

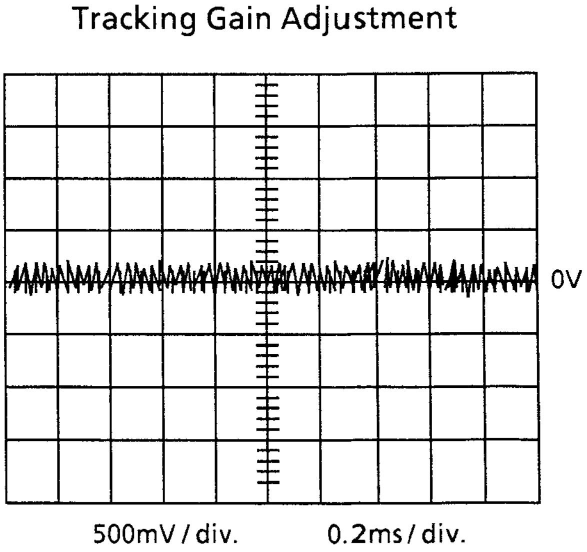
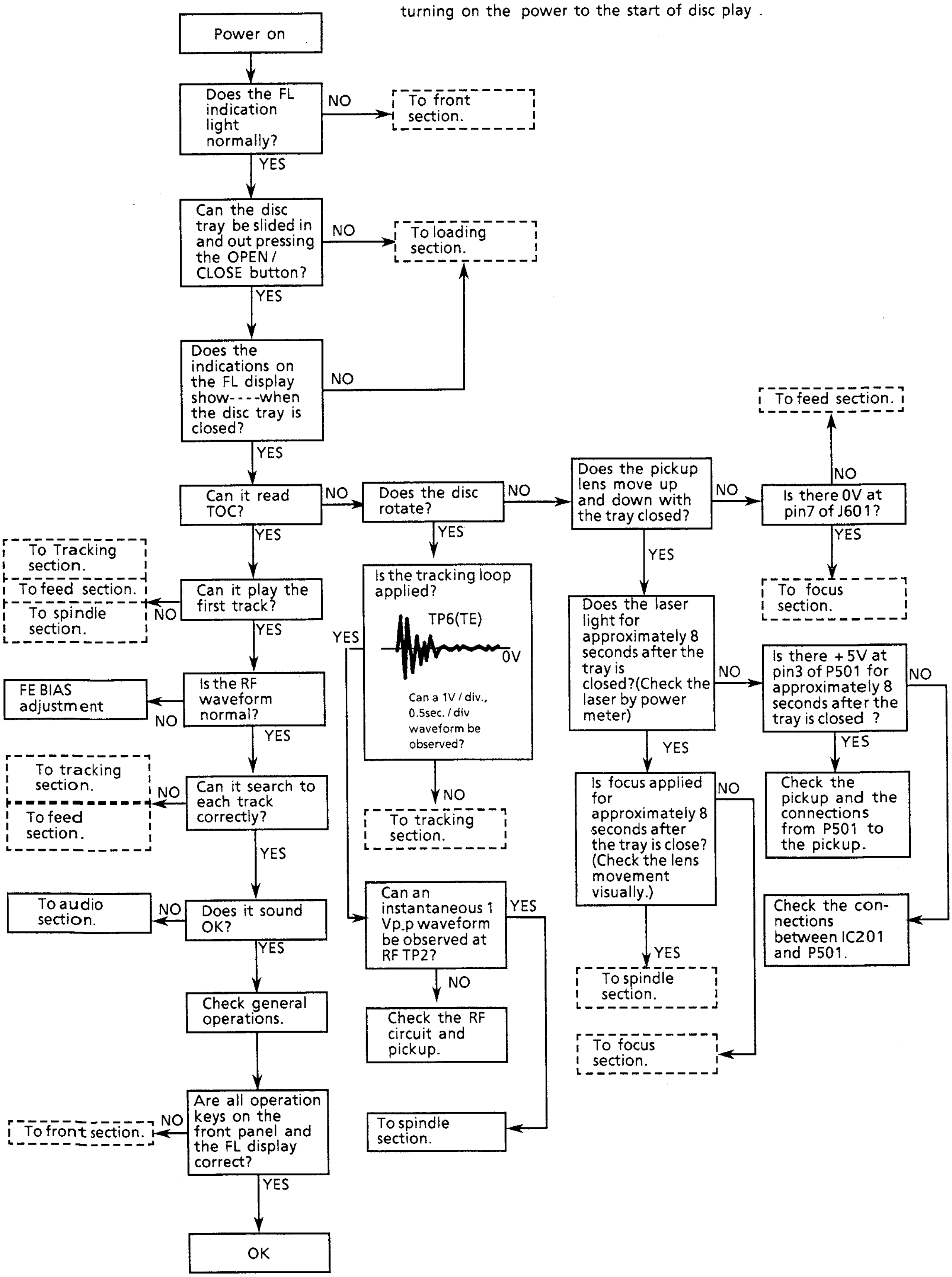


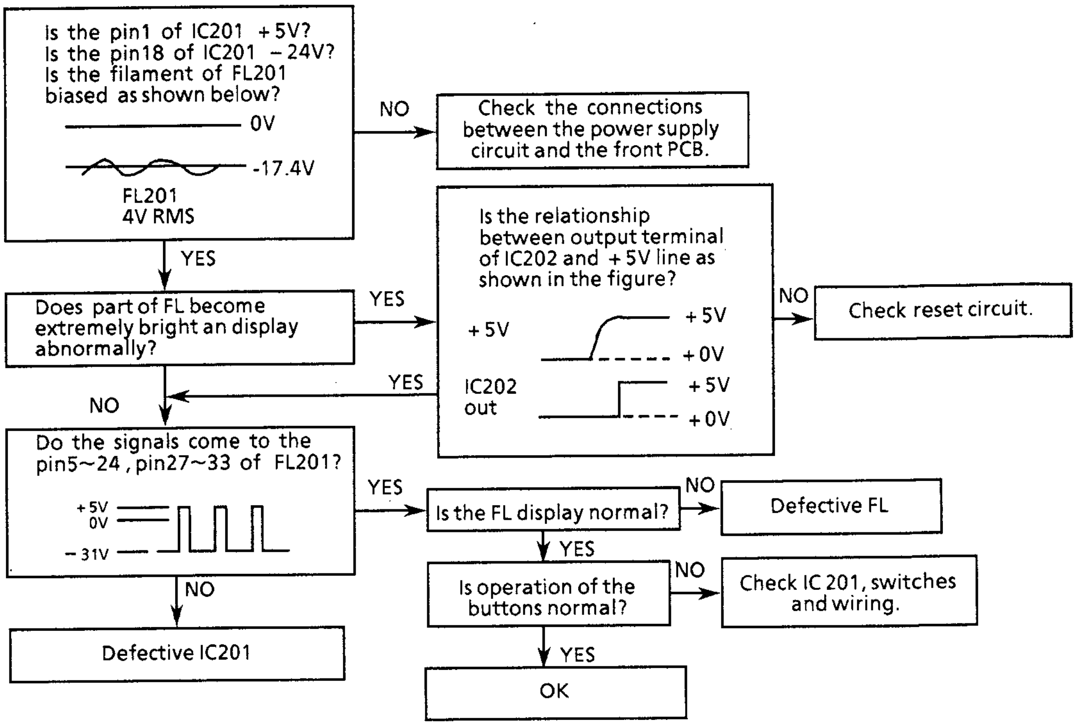
Figure. 2

Troubleshooting

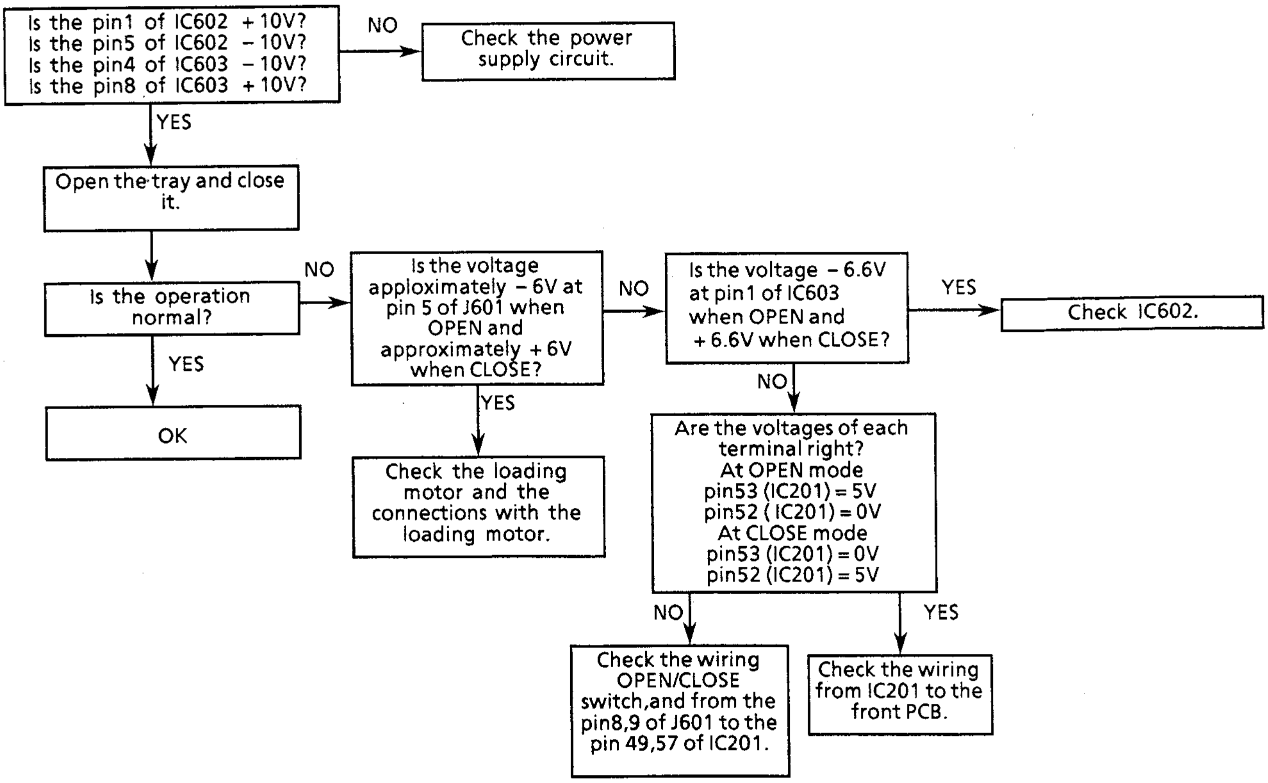
The following shows the status of the various circuits from turning on the power to the start of disc play .


Power on
Does the FL indication light normally?
NO
To front section.
YES
Can the disc tray be slided in and out pressing the OPEN / CLOSE button?
NO
To loading section.
YES
Does the indications on the FL display show- - - -when the disc tray is closed?
NO
YES
Can it read TOC?
NO
Does the disc rotate?
NO
Does the pickup lens move up and down with the tray closed?
NO
Is there 0V at pin7 of J601?
NO
To feed section.
YES
To focus section.
YES
To Tracking section.
To feed section.
To spindle section.
NO
Can it play the first track?
YES
Is the tracking loop applied?
TP6(TE)
0V
Can a 1V / div., 0.5sec. / div waveform be observed?
YES
NO
To tracking section.
YES
Does the laser light for approximately 8 seconds after the tray is closed?(Check the laser by power meter)
NO
Is there +5V at pin3 of P501 for approximately 8 seconds after the tray is closed ?
NO
YES
Check the pickup and the connections from P501 to the pickup.
Check the connections between IC201 and P501.
FE BIAS adjustment
NO
Is the RF waveform normal?
YES
To tracking section.
To feed section.
NO
Can it search to each track correctly?
YES
To audio section.
NO
Does it sound OK?
YES
Can an instantaneous 1 Vp.p waveform be observed at RF TP2?
YES
NO
Check the RF circuit and pickup.
To spindle section.
YES
Is focus applied for approximately 8 seconds after the tray is close? (Check the lens movement visually.)
NO
YES
To spindle section.
To focus section.
Check general operations.
Are all operation keys on the front panel and the FL display correct?
NO
To front section.
YES
OK

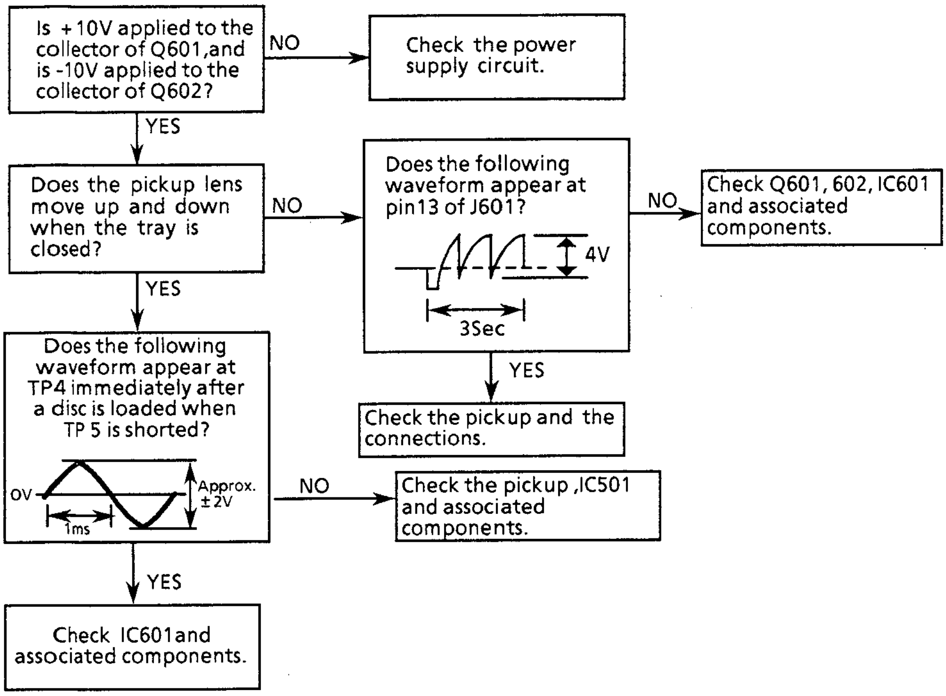
Front Section


Is the pin1 of IC201 +5V?
Is the pin18 of IC201 −24V?
Is the filament of FL201 biased as shown below?
0V
-17.4V
FL201
4V RMS
NO
Check the connections between the power supply circuit and the front PCB.
YES
Does part of FL become extremely bright an display abnormally?
YES
Is the relationship between output terminal of IC202 and +5V line as shown in the figure?
+5V
+5V
+0V
IC202 out
+5V
+0V
NO
Check reset circuit.
YES
NO
Do the signals come to the pin5~24, pin27~33 of FL201?
+5V
0V
−31V
YES
Is the FL display normal?
NO
Defective FL
YES
Is operation of the buttons normal?
NO
Check IC 201, switches and wiring.
YES
OK
NO
Defective IC201

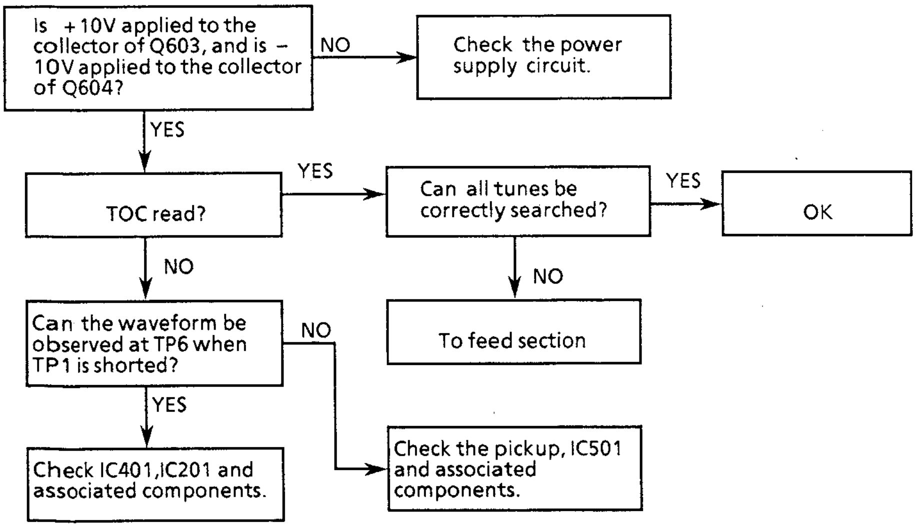
Loading section


Is the pin1 of IC602 +10V?
Is the pin5 of IC602 −10V?
Is the pin4 of IC603 −10V?
Is the pin8 of IC603 +10V?
NO
Check the power supply circuit.
YES
Open the tray and close it.
Is the operation normal?
NO
Is the voltage apploximately −6V at pin 5 of J601 when OPEN and approximately +6V when CLOSE?
NO
Is the voltage −6.6V at pin1 of IC603 when OPEN and +6.6V when CLOSE?
YES
Check IC602.
YES
OK
YES
Check the loading motor and the connections with the loading motor.
NO
Are the voltages of each terminal right?
At OPEN mode
pin53 (IC201) = 5V
pin52 (IC201) = 0V
At CLOSE mode
pin53 (IC201) = 0V
pin52 (IC201) = 5V
NO
YES
Check the wiring OPEN/CLOSE switch, and from the pin8,9 of J601 to the pin 49,57 of IC201.
Check the wiring from IC201 to the front PCB.

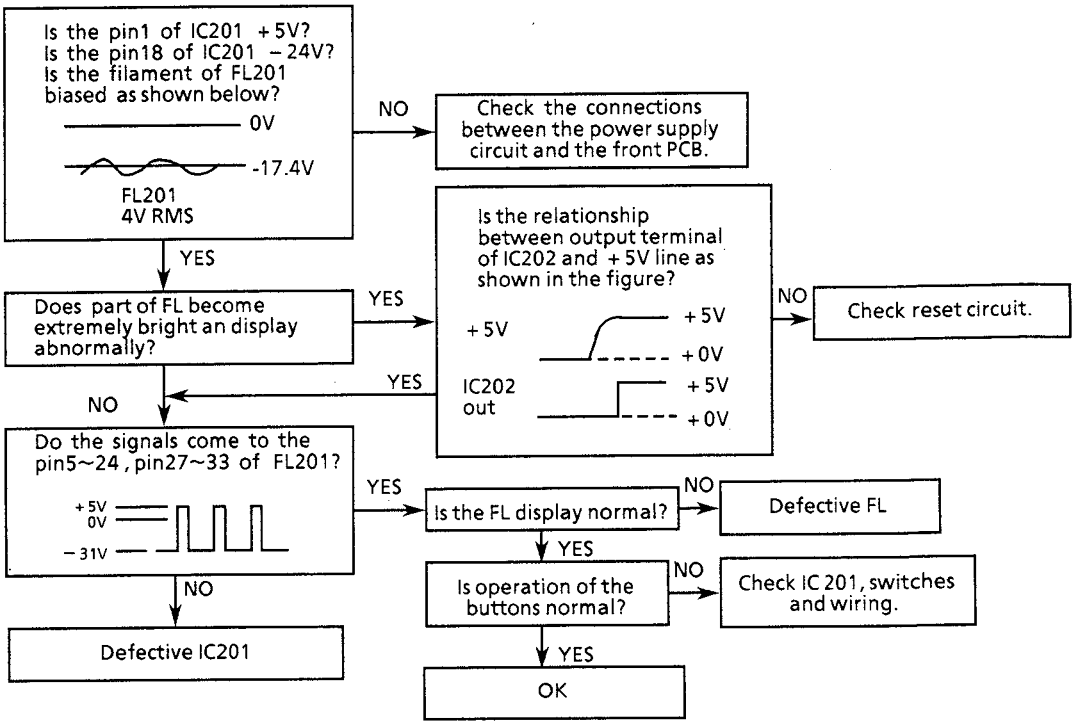
Focus section


Is +10V applied to the collector of Q601, and is -10V applied to the collector of Q602?
NO
Check the power supply circuit.
YES
Does the pickup lens move up and down when the tray is closed?
NO
Does the following waveform appear at pin13 of J601?
4V
3Sec
NO
Check Q601, 602, IC601 and associated components.
YES
Check the pickup and the connections.
YES
Does the following waveform appear at TP4 immediately after a disc is loaded when TP 5 is shorted?
0V
Approx. ±2V
1ms
NO
Check the pickup, IC501 and associated components.
YES
Check IC601 and associated components.

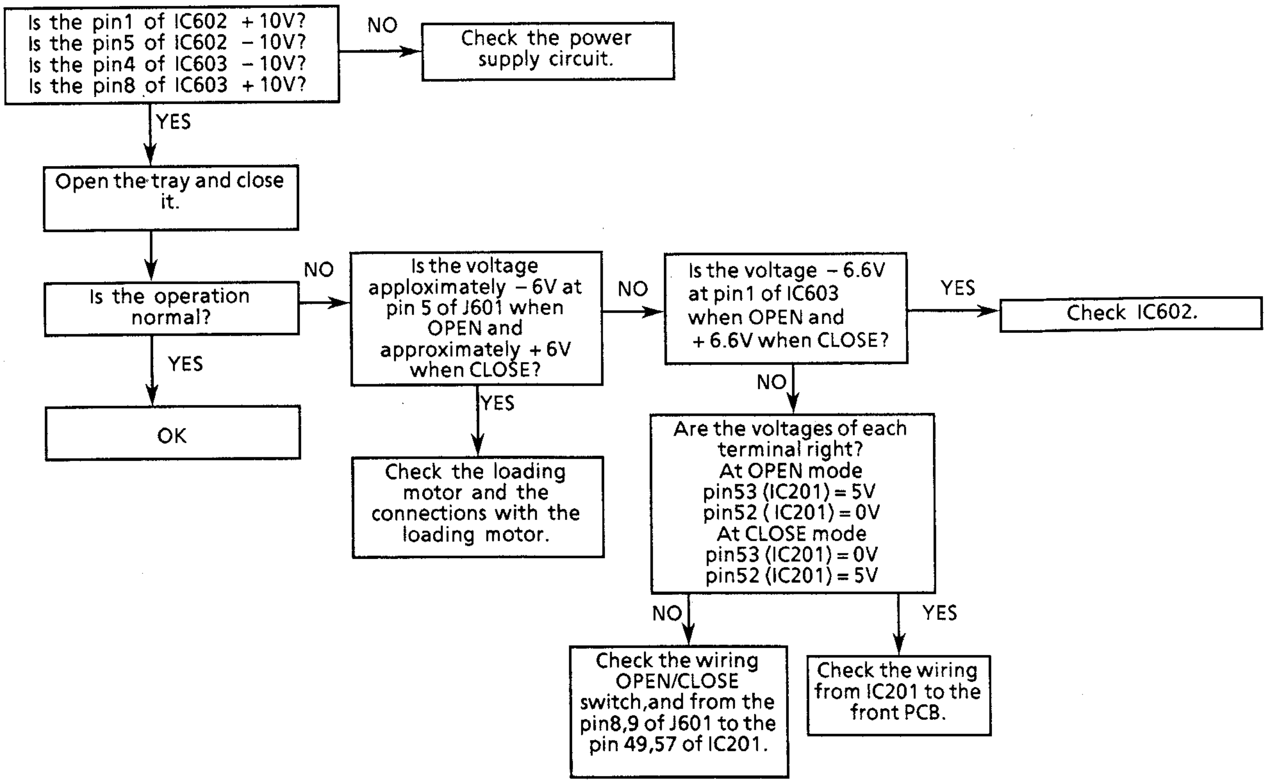
Tracking section


Is +10V applied to the collector of Q603, and is -10V applied to the collector of Q604?
NO
Check the power supply circuit.
YES
TOC read?
YES
Can all tunes be correctly searched?
YES
OK
NO
To feed section
NO
Can the waveform be observed at TP6 when TP1 is shorted?
NO
YES
Check IC401, IC201 and associated components.
Check the pickup, IC501 and associated components.

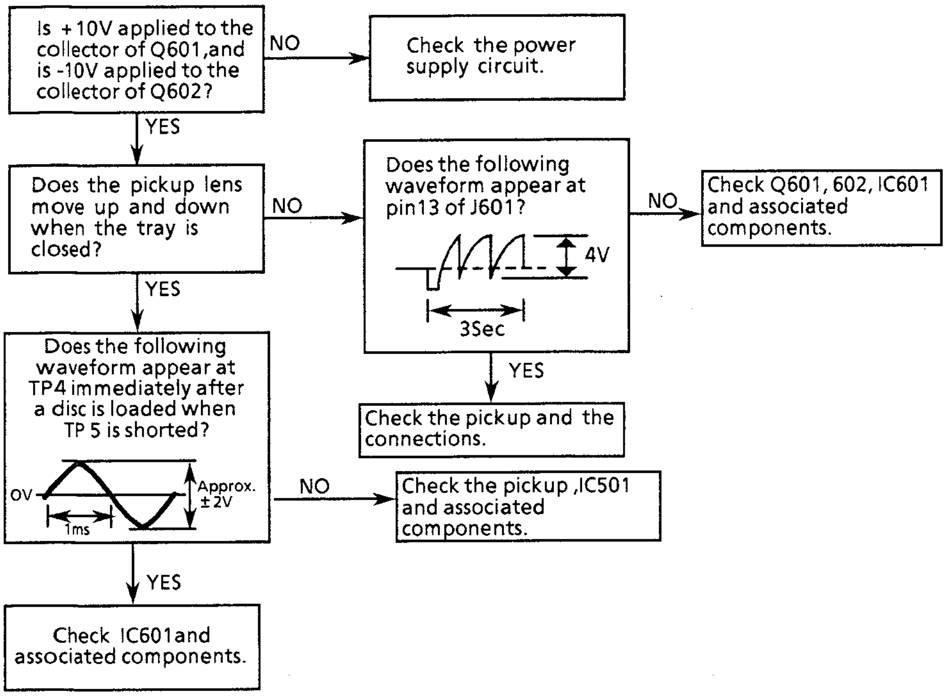
Front Section


Is the pin1 of IC201 +5V?
Is the pin18 of IC201 −24V?
Is the filament of FL201 biased as shown below?
0V
-17.4V
FL201
4V RMS
NO
Check the connections between the power supply circuit and the front PCB.
YES
Does part of FL become extremely bright an display abnormally?
YES
Is the relationship between output terminal of IC202 and +5V line as shown in the figure?
+5V
+5V
+0V
IC202 out
+5V
+0V
NO
Check reset circuit.
YES
NO
Do the signals come to the pin5~24, pin27~33 of FL201?
+5V
0V
−31V
YES
Is the FL display normal?
NO
Defective FL
YES
Is operation of the buttons normal?
NO
Check IC 201, switches and wiring.
YES
OK
NO
Defective IC201

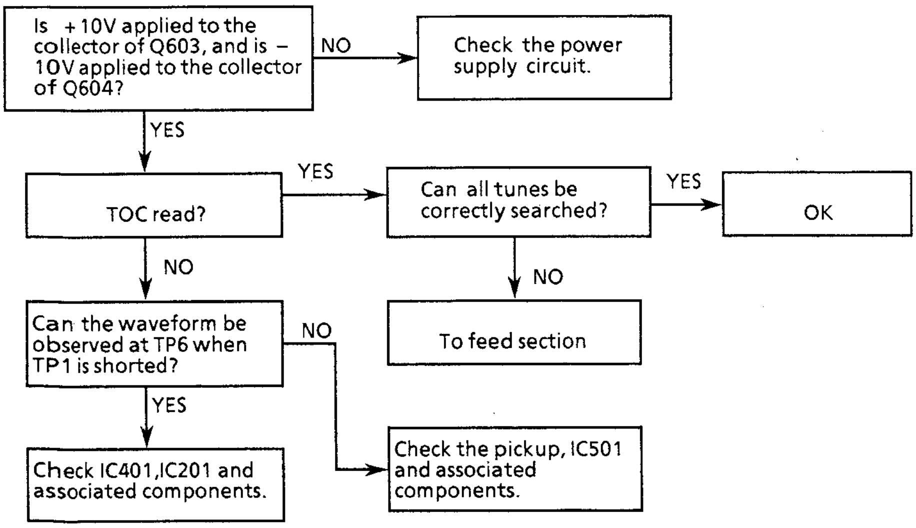
Loading section


Is the pin1 of IC602 +10V?
Is the pin5 of IC602 −10V?
Is the pin4 of IC603 −10V?
Is the pin8 of IC603 +10V?
NO
Check the power supply circuit.
YES
Open the tray and close it.
Is the operation normal?
NO
Is the voltage apploximately −6V at pin 5 of J601 when OPEN and approximately +6V when CLOSE?
NO
Is the voltage −6.6V at pin1 of IC603 when OPEN and +6.6V when CLOSE?
YES
Check IC602.
YES
OK
YES
Check the loading motor and the connections with the loading motor.
NO
Are the voltages of each terminal right?
At OPEN mode
pin53 (IC201) = 5V
pin52 (IC201) = 0V
At CLOSE mode
pin53 (IC201) = 0V
pin52 (IC201) = 5V
NO
Check the wiring OPEN/CLOSE switch, and from the pin8,9 of J601 to the pin 49,57 of IC201.
YES
Check the wiring from IC201 to the front PCB.

Focus section

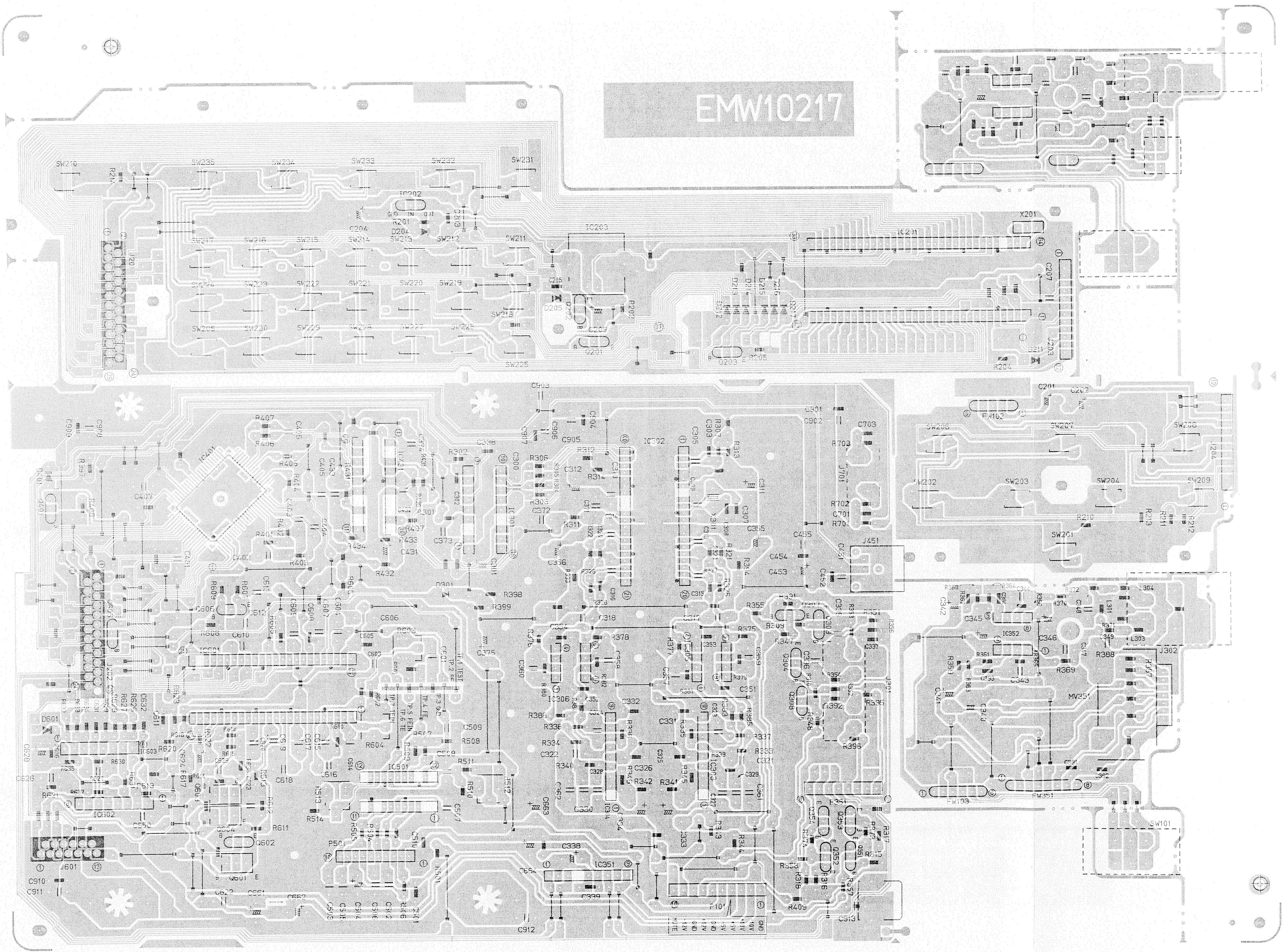

Is +10V applied to the collector of Q601,and is -10V applied to the collector of Q602?
NO
Check the power supply circuit.
YES
Does the pickup lens move up and down when the tray is closed?
NO
Does the following waveform appear at pin13 of J601?
4V
3Sec
NO
Check Q601, 602, IC601 and associated components.
YES
Check the pickup and the connections.
YES
Does the following waveform appear at TP4 immediately after a disc is loaded when TP 5 is shorted?
OV
Approx. ±2V
1ms
NO
Check the pickup ,IC501 and associated components.
YES
Check IC601and associated components.

Tracking section

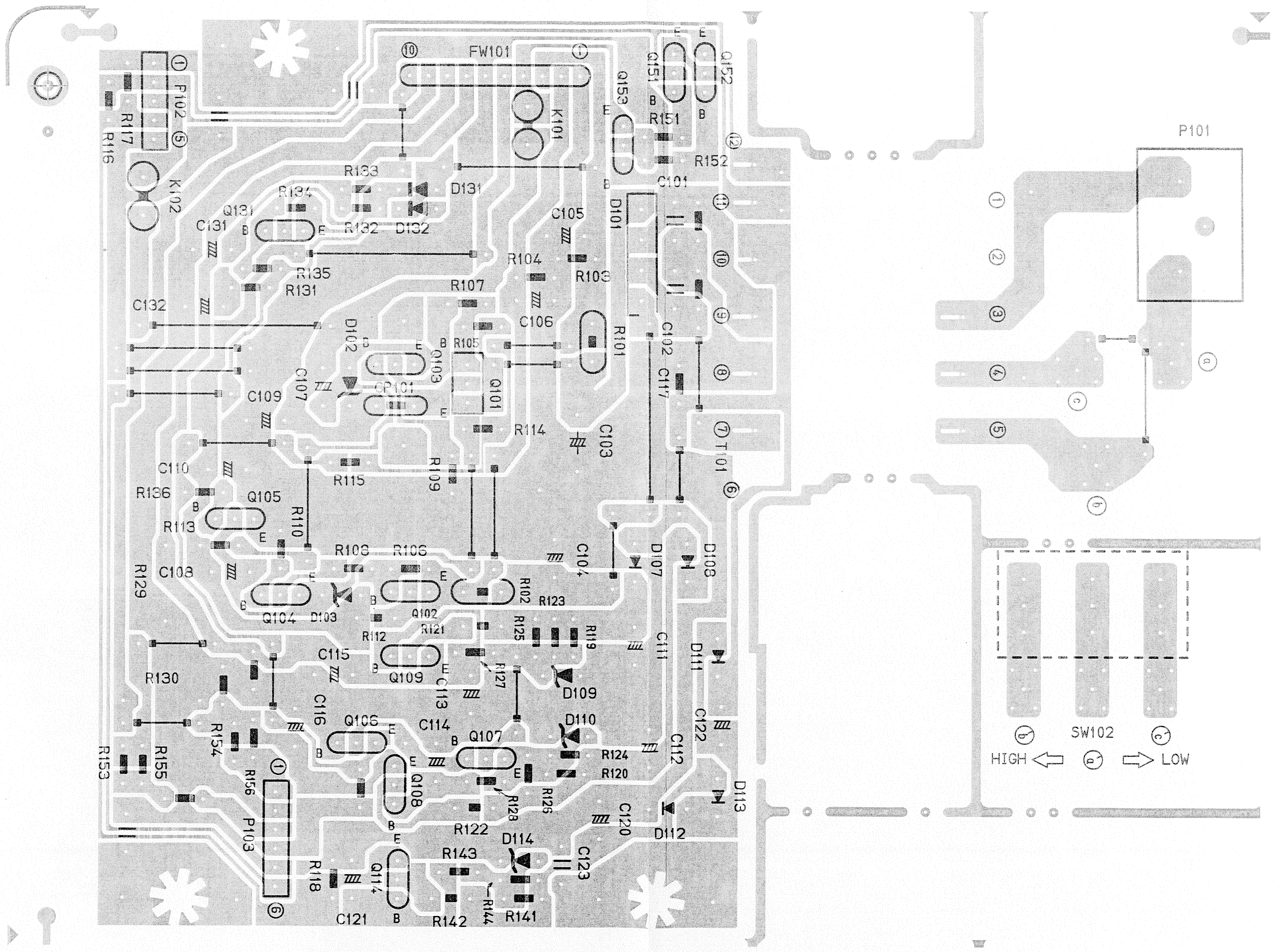

Is +10V applied to the collector of Q603, and is -10V applied to the collector of Q604?
NO
Check the power supply circuit.
YES
TOC read?
YES
Can all tunes be correctly searched?
YES
OK
NO
To feed section
NO
Can the waveform be observed at TP6 when TP1 is shorted?
NO
Check the pickup, IC501 and associated components.
YES
Check IC401,IC201 and associated components.

Printed Circuit Boards

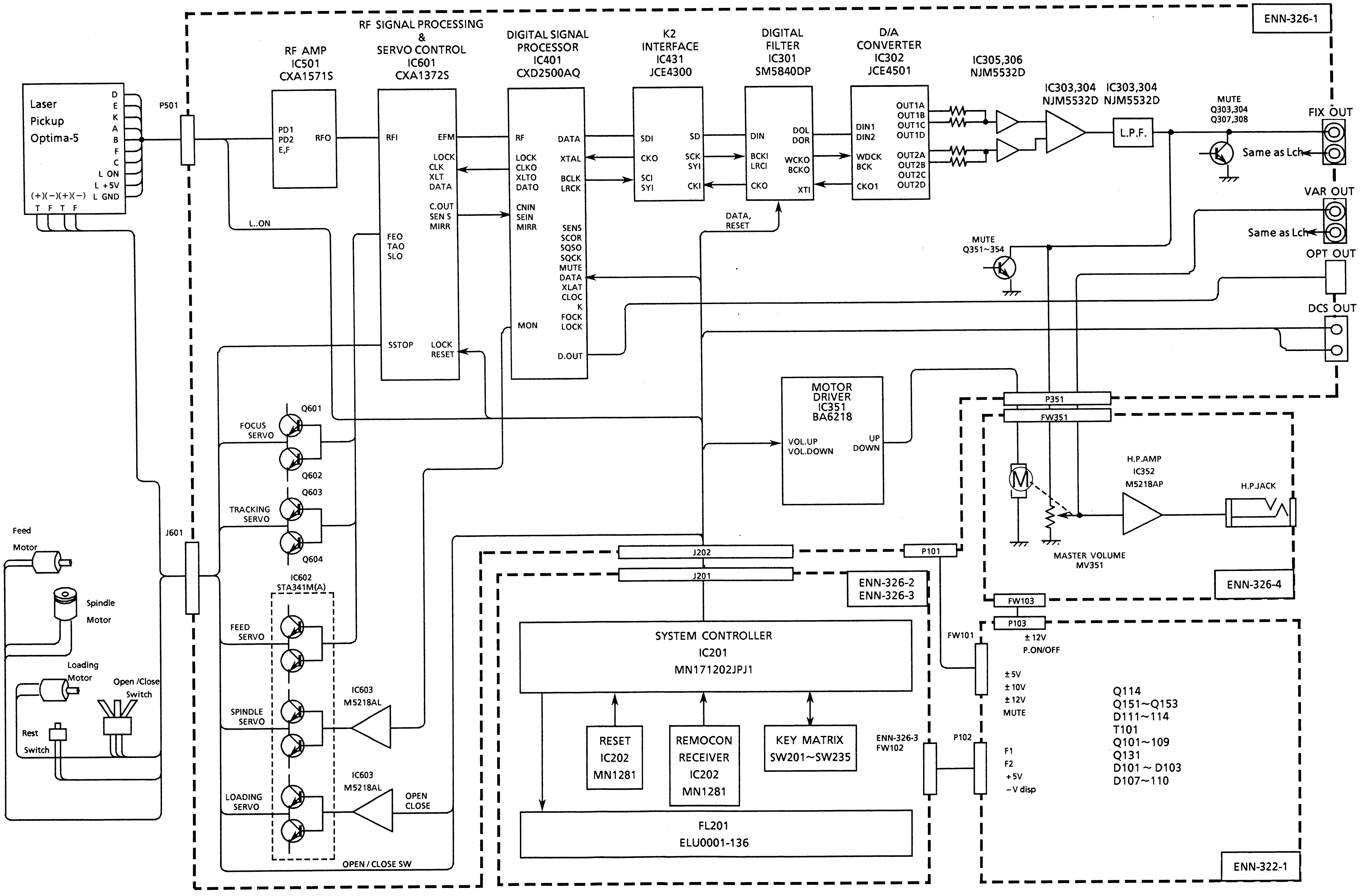
■ CD Main P.C.B. (ENN-326)



■ Power Supply P.C.B. (ENN-332)

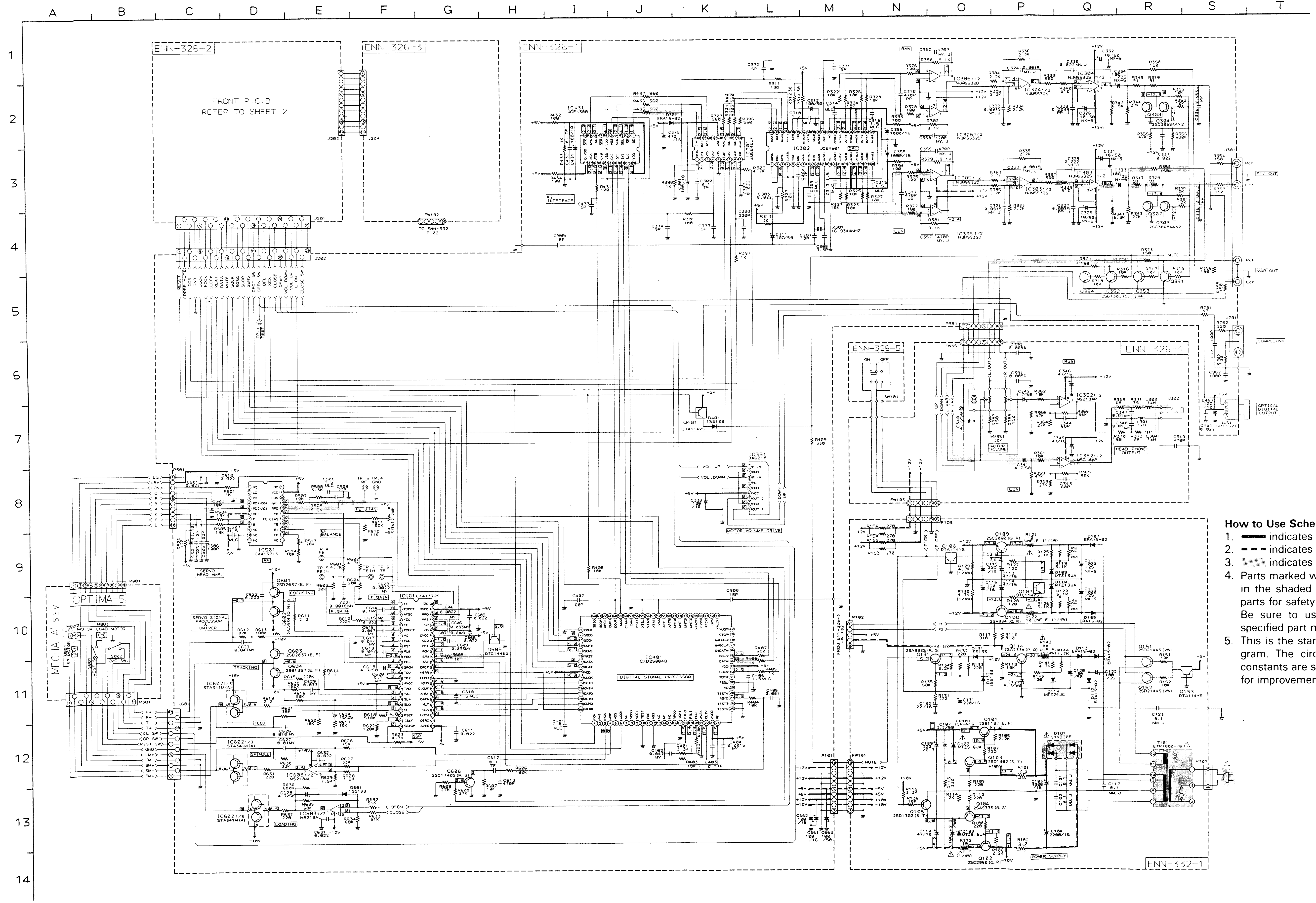

FW101
K101
K102
P102
P103
P101
Q151
Q152
Q153
R151
R152
C101
D101
R116
R117
R133
R134
D131
Q131
C131
R132
D132
C105
R104
R103
R135
R131
R107
C132
C106
D102
R105
Q103
Q101
R101
C102
C117
C107
CP101
C109
R114
C103
T101
C110
R115
R109
R136
Q105
R110
R113
R108
R106
C104
D107
D108
R129
C108
Q104
D103
Q102
R102
R123
R112
R121
R125
R119
C111
D111
C115
Q109
R127
R130
C113
D109
C116
Q106
C114
Q107
D110
C122
R124
C112
R154
R120
R153
R155
R156
Q108
R126
R128
D113
R122
C120
D112
D114
R143
C123
R118
Q114
C121
R142
R144
R141
SW102
HIGH
LOW
B
E

Block Diagram


ENN-326-1
Laser
Pickup
Optima-5
D
E
K
A
B
F
C
L ON
L +5V
L GND
(+)(−)(+)(−)
T F T F
P501
RF AMP
IC501
CXA1571S
PD1
PD2
E,F
RFO
RF SIGNAL PROCESSING
&
SERVO CONTROL
IC601
CXA1372S
RFI
EFM
LOCK
CLK
XLT
DATA
C.OUT
SEN S
MIRR
FEO
TAO
SLO
SSTOP
LOCK
RESET
L..ON
DIGITAL SIGNAL
PROCESSOR
IC401
CXD2500AQ
RF
DATA
LOCK
CLKO
XLTO
DATO
XTAL
BCLK
LRCK
CNIN
SEIN
MIRR
SENS
SCOR
SQSO
SQCK
MUTE
DATA
XLAT
CLOCK
FOCK
LOCK
MON
D.OUT
K2
INTERFACE
IC431
JCE4300
SDI
SD
CKO
SCK
SYI
SCI
SYI
CKI
DATA,
RESET
DIGITAL
FILTER
IC301
SM5840DP
DIN
DOL
DOR
BCKI
LRCI
WCKO
BCKO
CKO
XTI
D/A
CONVERTER
IC302
JCE4501
DIN1
DIN2
OUT1A
OUT1B
OUT1C
OUT1D
WDCK
BCK
OUT2A
OUT2B
OUT2C
OUT2D
CKO1
IC305,306
NJM5532D
IC303,304
NJM5532D
IC303,304
NJM5532D
L.P.F.
MUTE
Q303,304
Q307,308
FIX OUT
Same as Lch
VAR OUT
Same as Lch
OPT OUT
DCS OUT
MUTE
Q351~354
MOTOR
DRIVER
IC351
BA6218
VOL.UP
VOL.DOWN
UP
DOWN
P351
FW351
H.P.AMP
IC352
M5218AP
H.P.JACK
MASTER VOLUME
MV351
ENN-326-4
Q601
FOCUS
SERVO
Q602
Q603
TRACKING
SERVO
Q604
J601
IC602
STA341M(A)
FEED
SERVO
SPINDLE
SERVO
LOADING
SERVO
IC603
M5218AL
IC603
M5218AL
OPEN
CLOSE
OPEN / CLOSE SW
Feed
Motor
Spindle
Motor
Loading
Motor
Open /Close
Switch
Rest
Switch
J202
J201
P101
ENN-326-2
ENN-326-3
SYSTEM CONTROLLER
IC201
MN171202JPJ1
RESET
IC202
MN1281
REMOCON
RECEIVER
IC202
MN1281
KEY MATRIX
SW201~SW235
FL201
ELU0001-136
ENN-326-3
FW102
FW101
P102
FW103
P103
± 12V
P.ON/OFF
± 5V
± 10V
± 12V
MUTE
F1
F2
+5V
−V disp
Q114
Q151~Q153
D111~114
T101
Q101~109
Q131
D101 ~ D103
D107~110
ENN-322-1

Schematic Diagram

■ CD Main & Power Supply Section

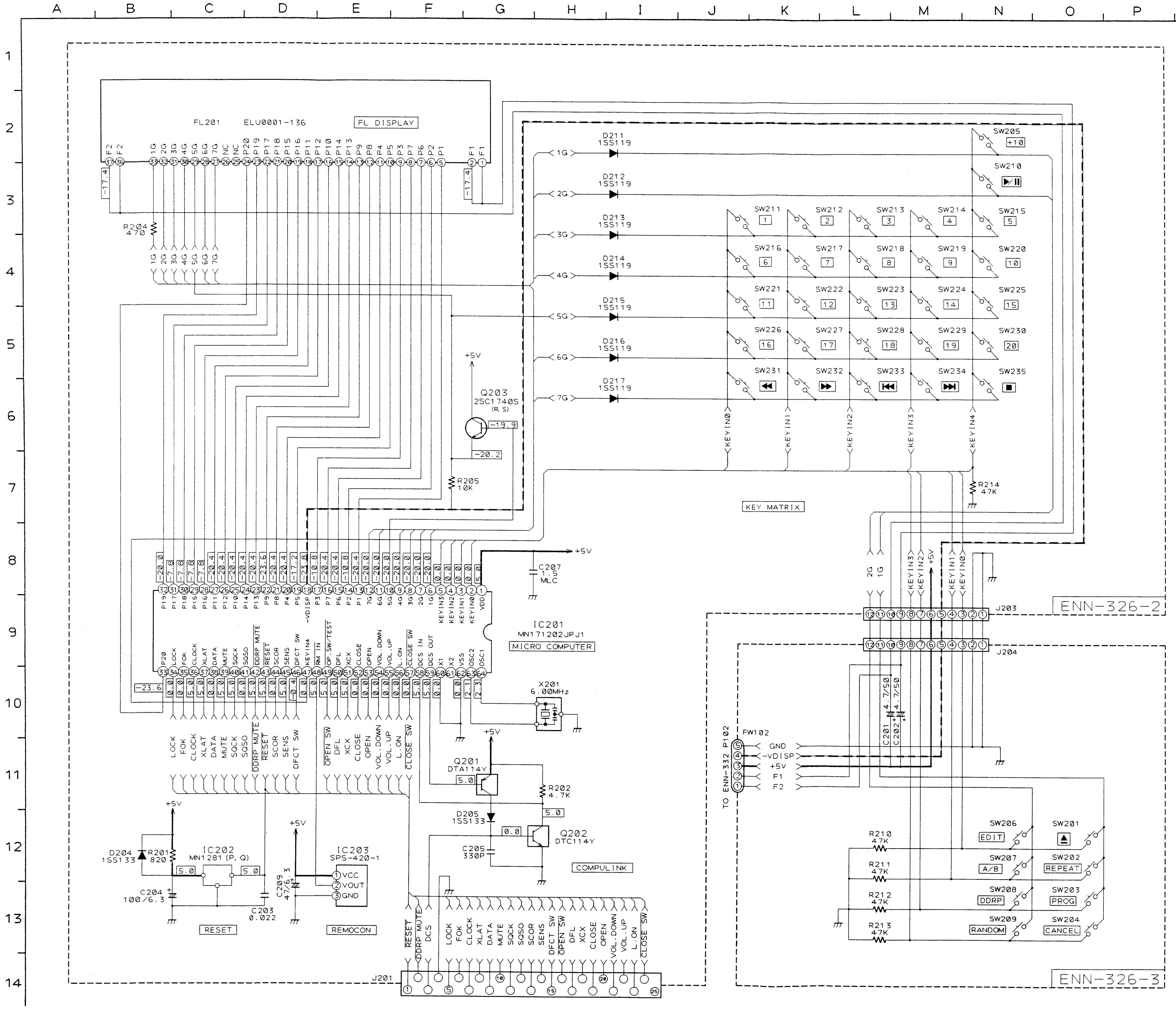

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
1
2
3
4
5
6
7
8
9
10
11
12
13
14
ENN-326-2
FRONT P.C.B
REFER TO SHEET 2
ENN-326-3
ENN-326-1
ENN-326-5
ENN-326-4
ENN-332-1
OPTIMA-5
MECHA. A'SSY
IC302 JCE4501
IC431 JCE4100
IC401 CXD2500AQ
DIGITAL SIGNAL PROCESSOR
IC501 CXA1571S
SERVO HEAD AMP
IC601 CXA1372S
SERVO SIGNAL PROCESSOR DRIVER
IC351 BA6218
MOTOR VOLUME DRIVE
K2 INTERFACE
HEAD PHONE OUTPUT
FIX OUT
VAR OUT
COMPU LINK
OPTICAL DIGITAL OUTPUT
POWER SUPPLY
X301 16.9344MHZ
M001 FEED MOTOR
M002 LOAD MOTOR
TRACKING
FOCUSING
FEED
SPINDLE
LOADING
OPEN
CLOSE
VOL.UP
VOL.DOWN
MUTE
Rch
Lch

How to Use Schematic Diagrams

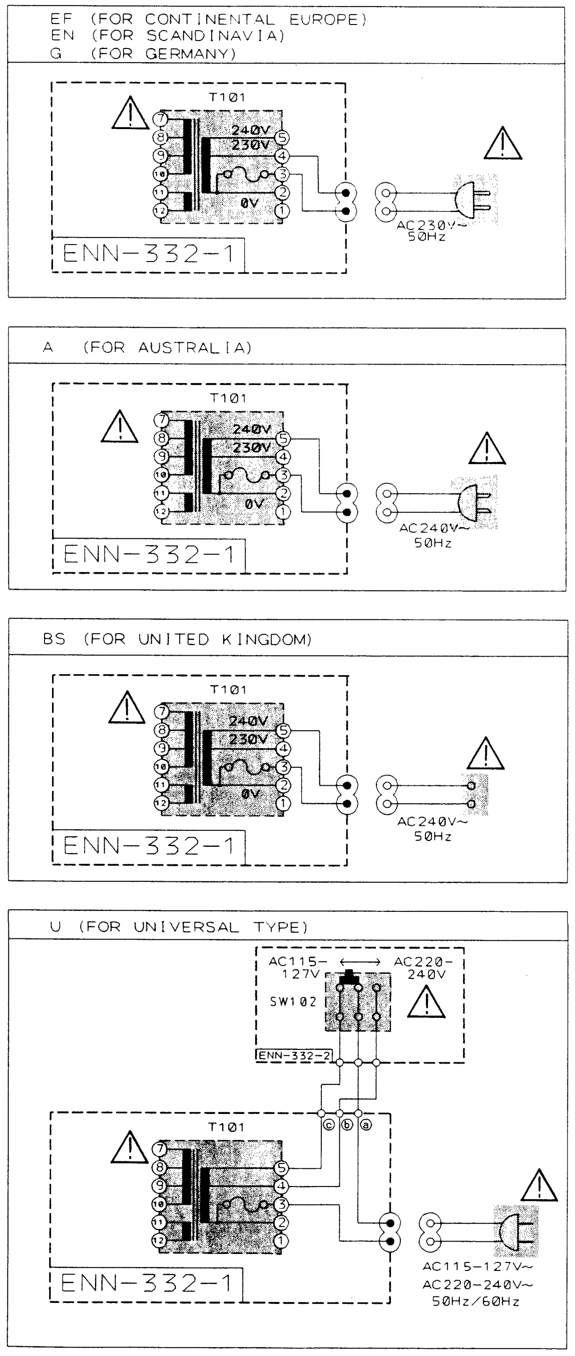
1. ▬ indicates the +B line.
2. ‒ ‒ ‒ indicates the −B line.
3. ▨ indicates signal path.
4. Parts marked with ⚠ and those in the shaded area ▨ are parts for safety. Be sure to use one with the specified part number.
5. This is the standard circuit diagram. The circuits and circuit constants are subject to change for improvement without notice.

XL-Z551TN
XL-Z552BK

■ System Control & FL Display Section

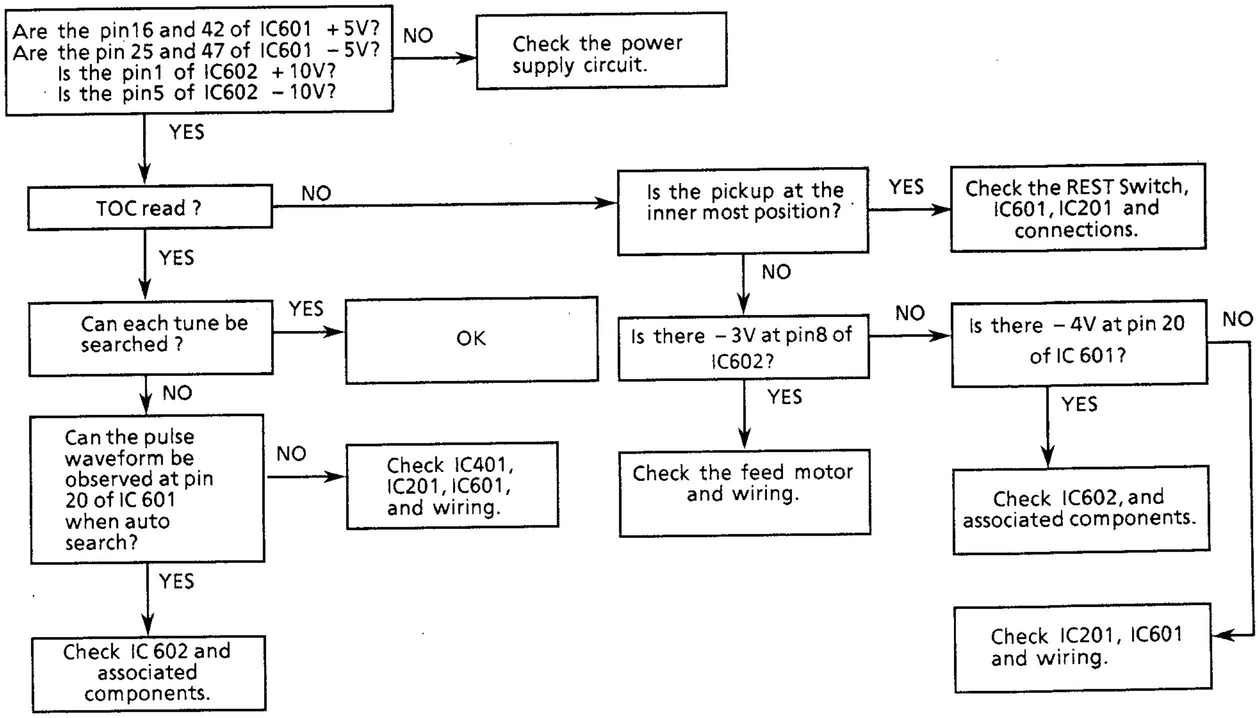

A B C D E F G H I J K L M N O P Q R S T
1 2 3 4 5 6 7 8 9 10 11 12 13 14
FL201 ELU0001-136
FL DISPLAY
D211 1SS119
D212 1SS119
D213 1SS119
D214 1SS119
D215 1SS119
D216 1SS119
D217 1SS119
1G 2G 3G 4G 5G 6G 7G
SW205 +10
SW210 ▶/II
SW211 1
SW212 2
SW213 3
SW214 4
SW215 5
SW216 6
SW217 7
SW218 8
SW219 9
SW220 10
SW221 11
SW222 12
SW223 13
SW224 14
SW225 15
SW226 16
SW227 17
SW228 18
SW229 19
SW230 20
SW231 ◀◀
SW232 ▶▶
SW233 I◀◀
SW234 ▶▶I
SW235 ■
KEYIN0 KEYIN1 KEYIN2 KEYIN3 KEYIN4
KEY MATRIX
R204 470
Q203 2SC1740S (R, S)
-19.9
-20.2
R205 10K
R214 47K
IC201 MN171202JPJ1
MICRO COMPUTER
C207 1.0 MLC
+5V
X201 6.00MHz
Q201 DTA114Y
R202 4.7K
D205 1SS133
Q202 DTC114Y
C205 330P
COMPULINK
D204 1SS133
R201 820
IC202 MN1281 (P, Q)
C204 100/6.3
C203 0.022
RESET
IC203 SPS-420-1
VCC VOUT GND
C209 47/6.3
REMOCON
LOCK FOK CLOCK XLAT DATA MUTE SQCK SQSO DDRP MUTE RESET SCOR SENS DFCT SW
OPEN SW DFL XCX CLOSE OPEN VOL.DOWN VOL.UP L.ON CLOSE SW
J201
ENN-326-2
J203
J204
2G 1G KEYIN3 KEYIN2 +5V KEYIN1 KEYIN0
C201 4.7/50
C202 4.7/50
TO ENN-332 P102
FW102
GND -VDISP +5V F1 F2
R210 47K
R211 47K
R212 47K
R213 47K
SW206 EDIT
SW207 A/B
SW208 DDRP
SW209 RANDOM
SW201 ▲
SW202 REPEAT
SW203 PROG
SW204 CANCEL
ENN-326-3

POWER SUPPLY SECTION

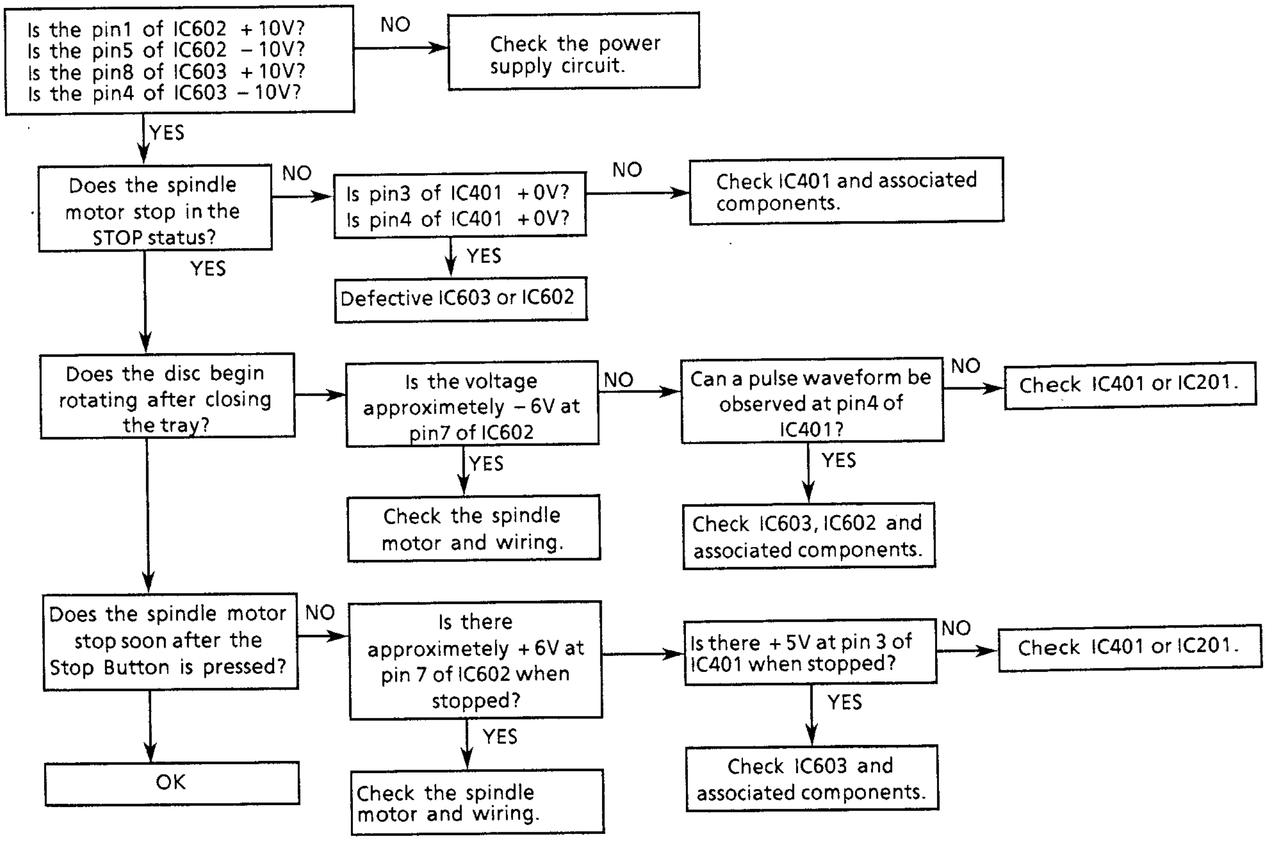

EF (FOR CONTINENTAL EUROPE)
EN (FOR SCANDINAVIA)
G (FOR GERMANY)
T101
240V 230V 0V
AC230V~ 50Hz
ENN-332-1
A (FOR AUSTRALIA)
AC240V~ 50Hz
BS (FOR UNITED KINGDOM)
U (FOR UNIVERSAL TYPE)
AC115-127V ←→ AC220-240V
SW102
ENN-332-2
AC115-127V~ AC220-240V~ 50Hz/60Hz

(No. 20321)

Feed section


Are the pin16 and 42 of IC601 +5V?
Are the pin 25 and 47 of IC601 −5V?
Is the pin1 of IC602 +10V?
Is the pin5 of IC602 −10V?
NO
Check the power supply circuit.
YES
TOC read ?
NO
Is the pickup at the inner most position?
YES
Check the REST Switch, IC601, IC201 and connections.
NO
YES
Can each tune be searched ?
YES
OK
Is there −3V at pin8 of IC602?
NO
Is there −4V at pin 20 of IC 601?
NO
NO
Can the pulse waveform be observed at pin 20 of IC 601 when auto search?
NO
Check IC401, IC201, IC601, and wiring.
YES
Check the feed motor and wiring.
YES
Check IC602, and associated components.
YES
Check IC 602 and associated components.
Check IC201, IC601 and wiring.

Spindle section


Is the pin1 of IC602 +10V?
Is the pin5 of IC602 −10V?
Is the pin8 of IC603 +10V?
Is the pin4 of IC603 −10V?
NO
Check the power supply circuit.
YES
Does the spindle motor stop in the STOP status?
NO
Is pin3 of IC401 +0V?
Is pin4 of IC401 +0V?
NO
Check IC401 and associated components.
YES
Defective IC603 or IC602
YES
Does the disc begin rotating after closing the tray?
Is the voltage approximetely −6V at pin7 of IC602
NO
Can a pulse waveform be observed at pin4 of IC401?
NO
Check IC401 or IC201.
YES
Check the spindle motor and wiring.
YES
Check IC603, IC602 and associated components.
Does the spindle motor stop soon after the Stop Button is pressed?
NO
Is there approximetely +6V at pin 7 of IC602 when stopped?
Is there +5V at pin 3 of IC401 when stopped?
NO
Check IC401 or IC201.
YES
YES
OK
Check the spindle motor and wiring.
Check IC603 and associated components.

PARTS LIST

Contents

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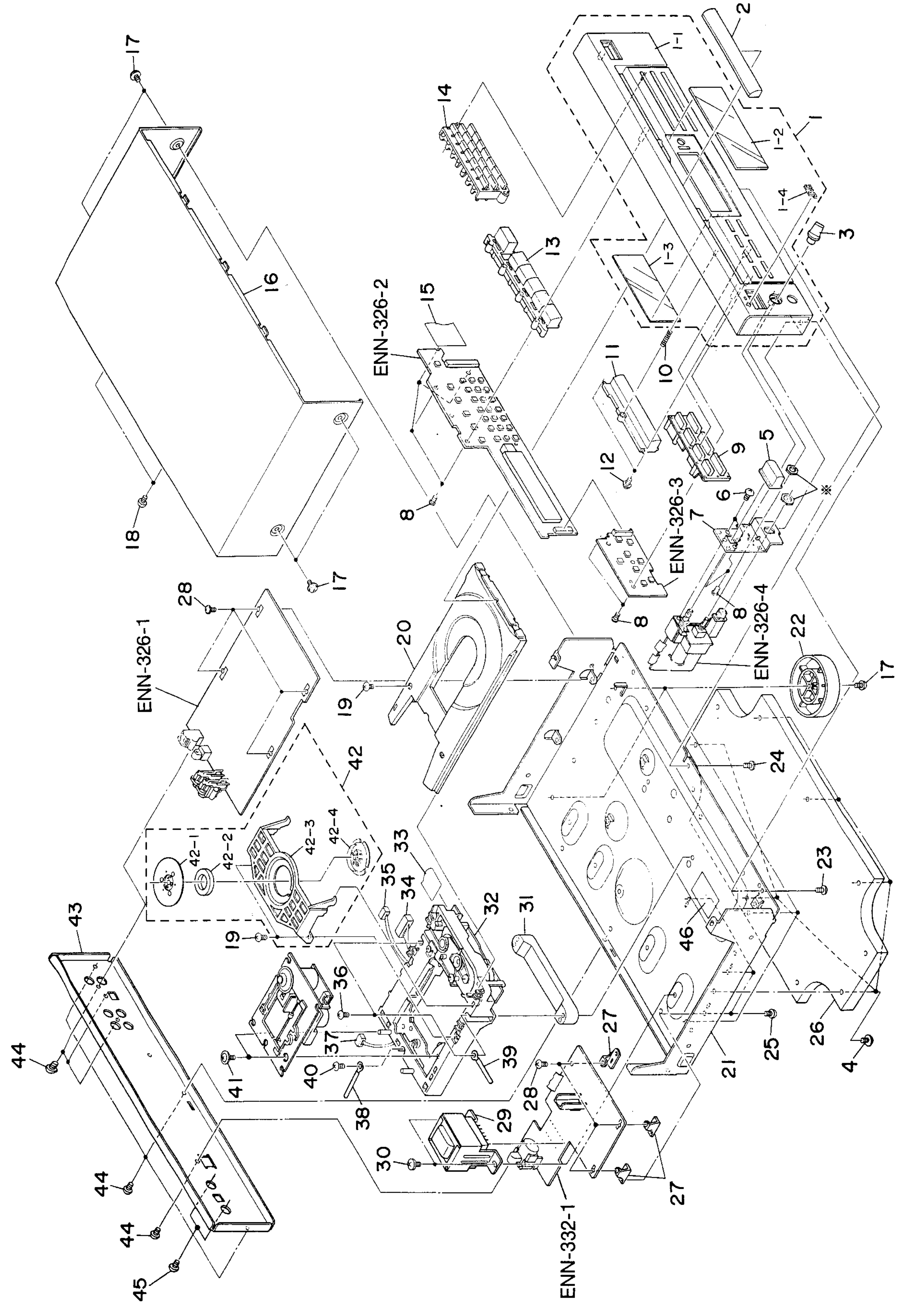
- ■ENN-332 ☐ Power Supply PC Board Ass'y 2-11

Accessories List 2-12

Packing Materials and Part Numbers 2-13

General Exploded View and Parts List


1
1-1
1-2
1-3
1-4
2
3
4
5
6
7
8
9
10
11
12
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ENN-326-1
ENN-326-2
ENN-326-3
ENN-326-4
ENN-332-1
※

※ mark indicates attached parts

Parts List

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	EFP-XLZ551TN(S	Front Panel Ass'y	1		
	1-1	FSJC1001-003SS	Front Panel	1		
	1-2	E307145-001SS	Window Screen	1		
	1-3	E406285-001SS	Fl Screen	1		
	1-4	E72968-001	JVC Mark	1		
	2	E307156-001SS	Fitting	1		
	3	E74179-005	Volume Knob	1		
	4	GBSG3012Z	Screw	6		
	5	E406283-001SS	Power Button	1		
	6	SBST3006Z	Screw	2		
	7	FSKL4001-001SS	Headphone Bracket	1		
	8	SDSF2608Z	Screw	8		
	9	E307155-001SS	Push Button	1	Random	
	10	E406333-001	Spring	1		
	11	E307149-001SS	Button	1	Open/Close	
	12	E72405-001	Special Screw	2		
	13	E307151-001SS	Play Button	1		
	14	FSXP2001-001SS	Push Button	1	21key	
	15	EWR1RE-25TT	Flat Cord	1	25pin	
	16	E206906-001	Metal Cover	1		
	17	E406308-001	Special Screw	4		
	18	SBST3008M	Screw	6		
	19	SBSF3008M	Screw	3		
	20	E12289-221SS	Tray	1		
	21	E102355-002SS	Chassis Base	1		
	22	FSYH4001-00ASS	Foot Ass'y	4		
	23	SBSG3006M	Screw	1		
	24	SDSF3008M	Screw	1		
	25	SBSG3006Z	Screw	3		
	26	FSJD1001-001SS	Wood Base	1		
	27	E68587-004	Circuit Board Bracket	3		
	28	SBSG3008CC	Screw	7		
⚠	29	ETP1000-70LAJ	Power Transformar	1		U
⚠		ETP1000-70EAJ	Power Transformar	1		Except U
	30	E65389-002	Special Screw	2		
	31	E307158-001SS	Stand	1		
	32		CD Mechanism Unit Ass'y	1	See page 2-5	
	33	EWR1DE-10TT	Flat Wire	1	13pin	
	34	EWS25A-B102	Socket Wire Ass'y	1	10pin	
	35	EWS254-B103	Socket Wire Ass'y	1	4pin	
	36	SBST3025Z	Screw	2		
	37	EWS256-B102	Socket Wire Ass'y	1	6pin	
	38	E72018-001	Wire Clamp	1		
	39	E72018-003	Wire Clamp	1		
	40	SBST3008Z	Screw	1		
	41	E75871-003	Special Screw	2		
	42	E306837-001	Clamper Base Ass'y	1		
	42-1	E306836-001	Yoke	1		
	42-2	E74897-002	Magnet	1		
	42-3	E26756-001	Clamper Base	1		
	42-4	E306835-001	Clamper	1		
	43	E207326-006SS	Rear Panel	1		U
		E207326-005SS	Rear Panel	1		Except U
	44	E73273-006	Special Screw	7		
	45	SBSF2608M	Screw	2		U

⚠: Safety Parts

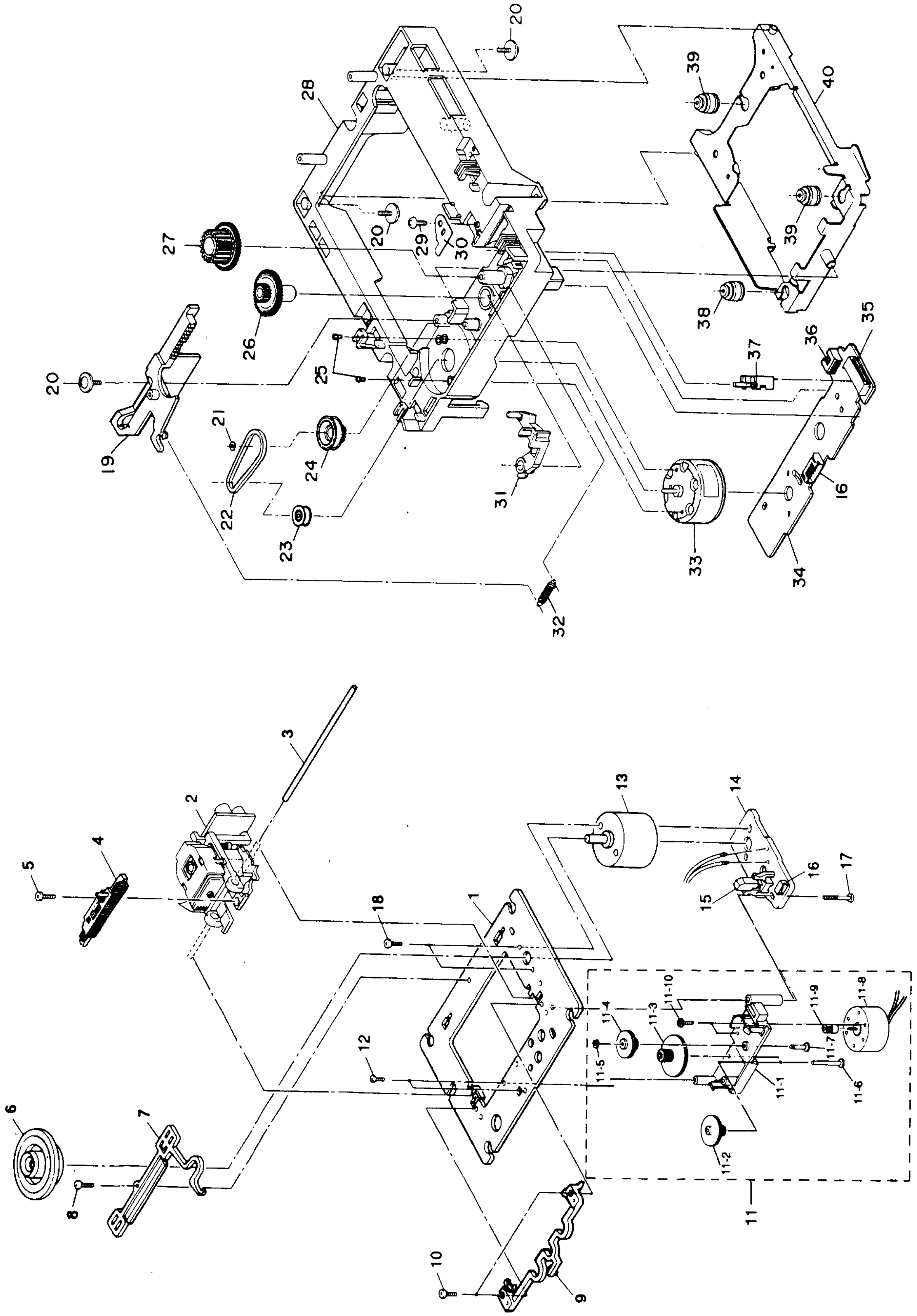
⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	46	E406507-001	Caution Label	1		
	–	E61029-005	Number Label	1		
	–	E70891-001	Class 1 Label	1		
	–	E70027-001	Approval Label	1		EN
	–	E70419-002F	F Mark Label	1		G
	–	QZL1031-101	SEV Label	1		EF

⚠: Safety Parts

The Marks Designated Areas

G ························ Germany
EF ······················ Continental Europe
EN ······················ Scandinavia
U ························ Universal Type
No mark indicates all areas.

CD Mechanism Ass'y and Parts List



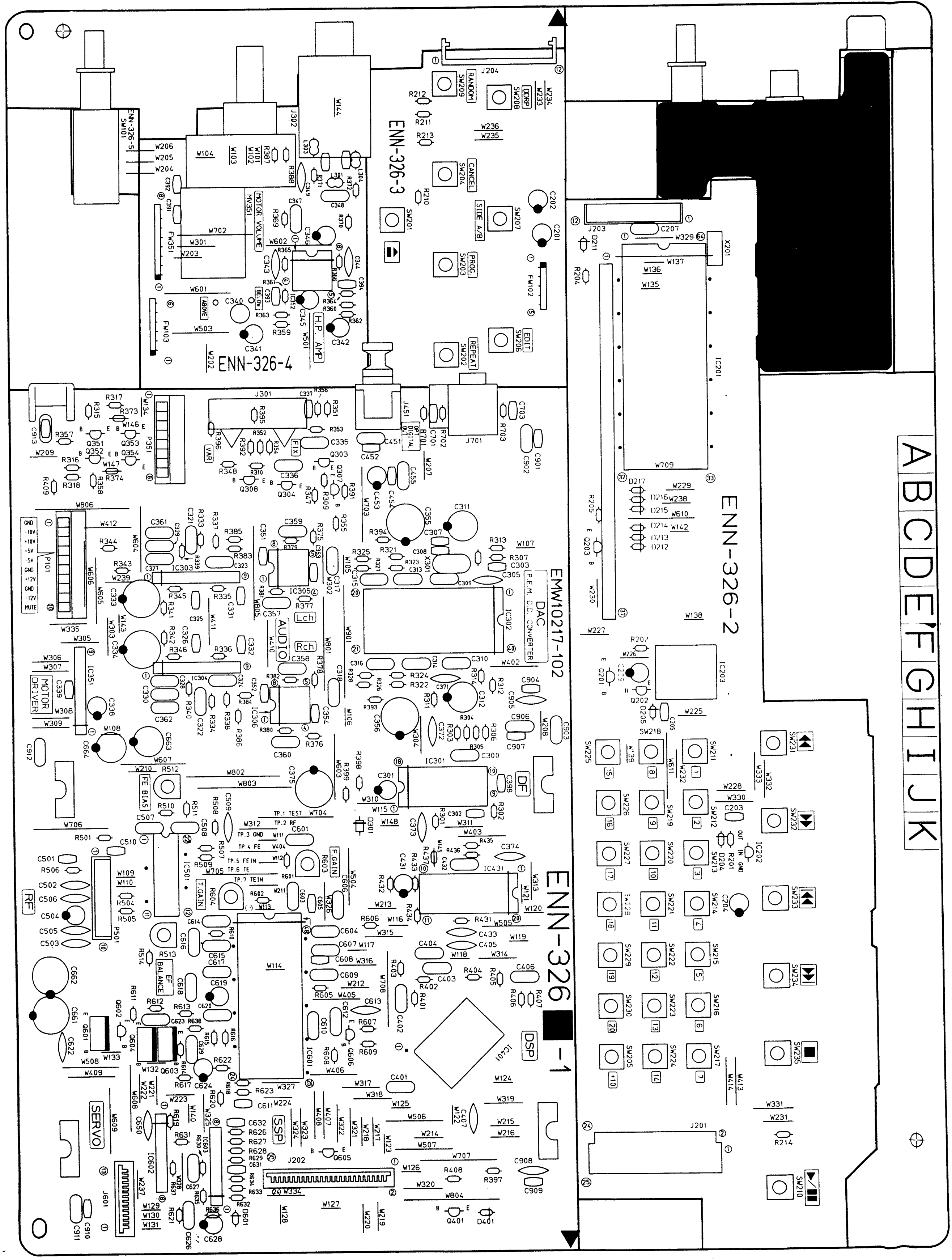
■Parts List

Item	Part Number	Part Name	Q'ty	Description	Areas
1	E26487-003	Mechanism Base	1		
2	OPTIMA-5S	Pick up Ass'y	1		
3	E74930-003	Shaft	1		
4	E306282-001	Rack Ass'y	1		
5	SPSH2050M	Screw	1		
6	E406064-002	Turn Table Ass'y	1		
7	E306275-003	Support	1		
8	SDST2005Z	Screw	1		
9	E306277-001	Holder	1		
10	SDST2004Z	Screw	2		
11	SE10351-11	Gear Ass'y	1		
11-1	E306276-001	Gear Base	1		
11-2	E75444-001	Gear	1		
11-3	E75443-001	Gear	1		
11-4	E75445-001	Gear	1		
11-5	WDM163550	Slit Washer	1		
11-6	E75494-003	Shaft	2		
11-7	E75494-002	Shaft	1		
11-8	HKN-3A6RDNV	Feed Motor	1		
11-9	E75493-001	Pinion Gear	1		
11-10	LPSH1735Z	Screw	2		
12	E72713-001	Screw	2		
13	E74539-001B	Spindle Motor	1		
14	E12114-005(S)	Circuit Board	1		
15	ESB1100-005	Leaf Switch	1	S001	
16	EMV5109-006B	6P Plug Ass'y	2	P011	
17	E75832-001	Screw	1		
18	SDSP2003N	Screw	2		
19	E306834-001	Cam	1		
20	E65923-003	Screw	3		
21	E72024-001	Speed Nut	1		
22	E75950-002	Belt	1		
23	E75984-001	Motor Pulley	1		
24	E75985-001	Gear (1)	1		
25	SPSK2640Z	Screw	2		
26	E75986-002	Gear (2)	1		
27	E75987-001	Gear (3)	1		
28	E12288-002	Loading Base	1		
29	SBSF3008Z	Screw	1		
30	E75988-001	Plate	1		
31	E306833-001	Lever	1		
32	E75989-001	Spring	1		
33	MMN-6F1LB8Q	Loading Motor	1		
34	EMW10060-002(S)	Circuit Board	1		
35	EMV7123-013R	Connector	1	13Pin	
36	EMV5109-004B	Plug Ass'y	1	4Pin	
37	ESS1200-002	Switch	1		
38	E75609-002	Insulator	1		
39	E75609-001	Insulator	2		
40	E307087-001	Elevator Base Ass'y	1		

Printed Circuit Board Ass'y and Parts List

■ENN-326 ☐ CD Main PC Board Ass'y

Note : ENN-326 ☐ varies according to the areas employed. See note (1) when placing an order


ENN-326-5
ENN-326-4
ENN-326-3
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EMW10217-102
A B C D E F G H I J K
MOTOR VOLUME
H.P. AMP
RANDOM
CANCEL
SIDE A/B
PROG.
REPEAT
EDIT
DDRP
AUDIO
Lch
Rch
DAC
P.E.M. D.C. CONVERTER
MOTOR DRIVER
FE BIAS
RF
T.GAIN
F.GAIN
EF BALANCE
DF
DSP
SSP
SERVO
J201
J202
J204
J301
J302
J601
J701
IC201
IC202
IC203
IC301
IC302
IC303
IC304
IC305
IC306
IC351
IC352
IC431
IC501
IC601
IC602
IC603
IC701

Note (1)

PC Board Ass'y	Designated Areas
ENN-326 🄴	Continental Europe, Scandinavia
ENN-326 🄵	Universal Type
ENN-326 🄶	Germany

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q201	DTA114YS	SILICON ROHM	
	Q202	DTC114YS	SILICON ROHM	
	Q203	2SC1740S(R,S)	SILICON ROHM	
	Q303	2SC3068	SILICON SANYO	
	Q304	2SC3068	SILICON SANYO	
	Q307	2SC3068	SILICON SANYO	
	Q308	2SC3068	SILICON SANYO	
	Q351	2SD1302(S,T)	SILICON MATSUSHITA	
	Q352	2SD1302(S,T)	SILICON MATSUSHITA	
	Q353	2SD1302(S,T)	SILICON MATSUSHITA	
	Q354	2SD1302(S,T)	SILICON MATSUSHITA	
	Q401	DTA114YS	SILICON ROHM	
	Q601	2SD2037(E,F)	SILICON ROHM	
	Q602	2SA934(Q,R)	SILICON ROHM	
	Q603	2SD2037(E,F)	SILICON ROHM	
	Q604	2SB1357(E,F)	SILICON ROHM	
	Q605	DTC144ES	SILICON ROHM	
	Q606	2SC1740S(R,S)	SILICON ROHM	

I. C. s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC201	MN171202JPJ1	I.C. MATSUSHITA	
	IC202	MN1281(P,Q)	I.C. MATSUSHITA	
	IC203	SPS-420-1	I.C. SANYO	
	IC301	SM5840DP	I.C. KANEMATSU	
	IC302	JCE4501	I.C. MATSUSHITA	
	IC303	NJM5532S	I.C. DAINICHI	
	IC304	NJM5532S	I.C. DAINICHI	
	IC305	NJM5532D	I.C. DAINICHI	
	IC306	NJM5532D	I.C. DAINICHI	
	IC351	BA6218	I.C. ROHM	
	IC352	M5218AP	I.C. MITSUBISHI	
	IC401	CXD2500AQ	I.C. 1680	
	IC431	JCE4300	I.C. FUJITSU	
	IC501	CXA1571S	I.C. 1680	
	IC601	CXA1372S	I.C. 1680	
	IC602	STA341M(A)	I.C. SANKEN	
	IC603	M5218AL	I.C. MITSUBISHI	

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D204	1SS133	SILICON ROHM	
	D205	1SS133	SILICON ROHM	
	D211	1SS119	SILICON HITACHI	
	D212	1SS119	SILICON HITACHI	
	D213	1SS119	SILICON HITACHI	
	D214	1SS119	SILICON HITACHI	
	D215	1SS119	SILICON HITACHI	
	D216	1SS119	SILICON HITACHI	
	D217	1SS119	SILICON HITACHI	
⚠	D301	ERA15-02L19	SILICON KYOUDOU	
	D401	1SS133	SILICON ROHM	
	D601	1SS133	SILICON ROHM	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C201	QER51HM-475	4.7MF 50V ELECTRO	
	C202	QER51HM-475	4.7MF 50V ELECTRO	
	C203	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C204	QER50JM-107	100MF 6.3V ELECTRO	
	C205	QCBB1HK-331	330PF 50V CERAMIC	
	C207	QCZ0205-155	1.5MF 25V CERAMIC	
	C209	QER50JM-476	47MF 6.3V ELECTRO	
	C300	QFV81HJ-104	0.1MF 50V T.FILM	
	C301	QETB1AM-107	100MF 10V ELECTRO	
	C302	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C303	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C305	QCS21HJ-470	47PF 50V CERAMIC	
	C307	QCT30CH-120	12PF 50V CERAMIC	
	C308	QCT30CH-3R3	3.3PF 50V CERAMIC	
	C309	QCZ0205-155	1.5MF 25V CERAMIC	
	C310	QCZ0205-155	1.5MF 25V CERAMIC	
	C311	QETB1HM-107	100MF 50V ELECTRO	
	C312	QETB1HM-107	100MF 50V ELECTRO	
	C313	QCZ0205-155	1.5MF 25V CERAMIC	
	C314	QCZ0205-155	1.5MF 25V CERAMIC	
	C315	QCZ0205-155	1.5MF 25V CERAMIC	
	C316	QCZ0205-155	1.5MF 25V CERAMIC	
	C317	QFP81HJ-471	470PF 50V POLY	
	C318	QFP81HJ-471	470PF 50V POLY	
	C321	QFN81HJ-152	1500PF 50V MYLAR	
	C322	QFN81HJ-152	1500PF 50V MYLAR	
	C323	QFN81HJ-152	1500PF 50V MYLAR	
	C324	QFN81HJ-152	1500PF 50V MYLAR	
	C325	EET5002-106N	10MF ELECTRO	
	C326	EET5002-106N	10MF ELECTRO	
	C327	QFP81HJ-392	3900PF 50V POLY	
	C328	QFP81HJ-392	3900PF 50V POLY	
	C329	EFZ0101-223S	0.022MF M.MYLAR	
	C330	EFZ0101-223S	0.022MF M.MYLAR	
	C331	EET5002-106N	10MF ELECTRO	
	C332	EET5002-106N	10MF ELECTRO	
	C333	EET2502-107N	100MF ELECTRO	
	C334	EET2502-107N	100MF ELECTRO	
	C335	QFP81HJ-822	8200PF 50V POLY	
	C336	QFP81HJ-822	8200PF 50V POLY	
	C337	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C338	QETB1AM-107	100MF 10V ELECTRO	
	C340	QEN51HM-475	4.7MF 50V NON POLE	
	C341	QETB1HM-475	4.7MF 50V ELECTRO	
	C342	QETB1HM-475	4.7MF 50V ELECTRO	
	C343	QCS21HJ-680	68PF 50V CERAMIC	
	C344	QCS21HJ-680	68PF 50V CERAMIC	
	C345	QETB1CM-476	47MF 16V ELECTRO	
	C346	QETB1CM-476	47MF 16V ELECTRO	
	C347	QFN81HJ-103	0.01MF 50V MYLAR	
	C348	QFN81HJ-103	0.01MF 50V MYLAR	
	C349	QCS21HJ-471	470PF 50V CERAMIC	
	C355	QETB1CM-108	1000MF 16V ELECTRO	
	C356	QETB1CM-108	1000MF 16V ELECTRO	
	C357	QFN81HJ-471	470PF 50V MYLAR	
	C358	QFN81HJ-471	470PF 50V MYLAR	
	C359	QFN81HJ-471	470PF 50V MYLAR	
	C360	QFN81HJ-471	470PF 50V MYLAR	
	C371	QCS21HJ-5R0	5PF 50V CERAMIC	
	C372	QCS21HJ-5R0	5PF 50V CERAMIC	
	C373	QCS21HJ-5R0	5PF 50V CERAMIC	
	C374	QCS21HJ-5R0	5PF 50V CERAMIC	
	C375	QETB1CM-477	470MF 16V ELECTRO	
	C391	QCXB1CM-562	5600PF 16V CERAMIC	
	C392	QCXB1CM-562	5600PF 16V CERAMIC	
	C398	QCBB1HK-221	220PF 50V CERAMIC	
	C401	QCZ0205-155	1.5MF 25V CERAMIC	
	C402	QFN81HJ-473	0.047MF 50V MYLAR	
	C403	QFV81HJ-104	0.1MF 50V T.FILM	
	C404	QFN81HJ-152	1500PF 50V MYLAR	
	C405	QCF21HP-102	1000PF 50V CERAMIC	
	C406	QCZ0205-155	1.5MF 25V CERAMIC	
	C407	QCS21HJ-680	68PF 50V CERAMIC	
	C431	QETB1AM-107	100MF 10V ELECTRO	
	C432	QFV81HJ-104	0.1MF 50V T.FILM	
	C433	QCS21HJ-5R0	5PF 50V CERAMIC	
	C451	QETB1CM-107	100MF 16V ELECTRO	
	C454	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C501	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C502	QCS21HJ-100	10PF 50V CERAMIC	

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C503	QCS21HJ-100	10PF 50V CERAMIC	
	C504	QETB1AM-476	47MF 10V ELECTRO	
	C505	QCS21HJ-820	82PF 50V CERAMIC	
	C506	QCS21HJ-101	100PF 50V CERAMIC	
	C507	QCZ0205-155	1.5MF 25V CERAMIC	
	C508	QCZ0205-155	1.5MF 25V CERAMIC	
	C509	QCS21HJ-220	22PF 50V CERAMIC	
	C510	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C601	QFN81HJ-182	1800PF 50V MYLAR	
	C603	QFN81HJ-222	2200PF 50V MYLAR	
	C604	QFN81HJ-222	2200PF 50V MYLAR	
	C605	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C606	QFN81HJ-333	0.033MF 50V MYLAR	
	C607	QFN81HJ-103	0.01MF 50V MYLAR	
	C608	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C609	QFN81HJ-333	0.033MF 50V MYLAR	
	C610	QCZ0205-155	1.5MF 25V CERAMIC	
	C611	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C612	QFV81HJ-104	0.1MF 50V T.FILM	
	C613	QCS21HJ-471	470PF 50V CERAMIC	
	C614	QFN81HJ-104	0.1MF 50V MYLAR	
	C615	QFN81HJ-333	0.033MF 50V MYLAR	
	C616	QFN81HJ-473	0.047MF 50V MYLAR	
	C617	QFN81HJ-473	0.047MF 50V MYLAR	
	C618	QFN81HJ-473	0.047MF 50V MYLAR	
	C619	QETB1HM-475	4.7MF 50V ELECTRO	
	C620	QFN81HJ-104	0.1MF 50V MYLAR	
	C622	QCF21HP-223	0.022MF 50V CERAMIC	
	C623	QFN81HJ-473	0.047MF 50V MYLAR	
	C624	QETB1EM-106	10MF 25V ELECTRO	
	C626	QFN81HJ-183	0.018MF 50V MYLAR	
	C627	QFN81HJ-103	0.01MF 50V MYLAR	
	C628	QETB1HM-475	4.7MF 50V ELECTRO	
	C629	QFN81HJ-333	0.033MF 50V MYLAR	
	C631	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C632	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C661	QETB1CM-107	100MF 16V ELECTRO	
	C662	QETB1CM-107	100MF 16V ELECTRO	
	C663	QETB1HM-107	100MF 50V ELECTRO	
	C701	QCBB1HK-101	100PF 50V CERAMIC	
	C902	QCS21HJ-101	100PF 50V CERAMIC	
	C905	QCT26CH-180	18PF 50V CERAMIC	
	C908	QCT26CH-180	18PF 50V CERAMIC	

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R201	QRD167J-821	820 1/6W CARBON	
	R202	QRD167J-472	4.7K 1/6W CARBON	
	R204	QRD167J-471	470 1/6W CARBON	
	R205	QRD167J-103	10K 1/6W CARBON	
	R210	QRD167J-473	47K 1/6W CARBON	
	R211	QRD167J-473	47K 1/6W CARBON	
	R212	QRD167J-473	47K 1/6W CARBON	
	R213	QRD167J-473	47K 1/6W CARBON	
	R214	QRD167J-473	47K 1/6W CARBON	
	R301	QRD167J-101	100 1/6W CARBON	
	R302	QRD167J-472	4.7K 1/6W CARBON	
	R303	QRD167J-561	560 1/6W CARBON	
	R304	QRD167J-561	560 1/6W CARBON	
	R305	QRD167J-561	560 1/6W CARBON	
	R306	QRD167J-561	560 1/6W CARBON	
	R307	QRD167J-103	10K 1/6W CARBON	
	R309	QRD167J-910	91 1/6W CARBON	
	R310	QRD167J-910	91 1/6W CARBON	
	R311	QRD167J-181	180 1/6W CARBON	
	R312	QRD167J-300	30 1/6W CARBON	
	R313	QRD167J-300	30 1/6W CARBON	
	R314	QRD167J-300	30 1/6W CARBON	
	R315	QRD167J-103	10K 1/6W CARBON	
	R316	QRD167J-103	10K 1/6W CARBON	
	R317	QRD167J-103	10K 1/6W CARBON	
	R318	QRD167J-103	10K 1/6W CARBON	
	R321	QRD167J-183	18K 1/6W CARBON	
	R322	QRD167J-183	18K 1/6W CARBON	
	R323	QRD167J-183	18K 1/6W CARBON	
	R324	QRD167J-183	18K 1/6W CARBON	
	R325	QRD167J-183	18K 1/6W CARBON	
	R326	QRD167J-183	18K 1/6W CARBON	
	R327	QRD167J-183	18K 1/6W CARBON	
	R328	QRD167J-183	18K 1/6W CARBON	
	R333	QRD167J-222	2.2K 1/6W CARBON	
	R334	QRD167J-222	2.2K 1/6W CARBON	
	R335	QRD167J-222	2.2K 1/6W CARBON	
	R336	QRD167J-222	2.2K 1/6W CARBON	
	R337	QRD167J-561	560 1/6W CARBON	
	R338	QRD167J-561	560 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R339	QRD167J-511	510 1/6W CARBON	
	R340	QRD167J-511	510 1/6W CARBON	
	R341	QRD167J-682	6.8K 1/6W CARBON	
	R342	QRD167J-682	6.8K 1/6W CARBON	
	R343	QRD167J-273	27K 1/6W CARBON	
	R344	QRD167J-273	27K 1/6W CARBON	
	R347	QRD167J-910	91 1/6W CARBON	
	R348	QRD167J-910	91 1/6W CARBON	
	R351	QRD167J-103	10K 1/6W CARBON	
	R352	QRD167J-103	10K 1/6W CARBON	
	R353	QRD167J-151	150 1/6W CARBON	
	R354	QRD167J-151	150 1/6W CARBON	
	R355	QRD167J-473	47K 1/6W CARBON	
	R356	QRD167J-684	680K 1/6W CARBON	
	R357	QRD167J-151	150 1/6W CARBON	
	R358	QRD167J-151	150 1/6W CARBON	
	R359	QRD167J-473	47K 1/6W CARBON	
	R360	QRD167J-473	47K 1/6W CARBON	
	R361	QRD167J-103	10K 1/6W CARBON	
	R362	QRD167J-103	10K 1/6W CARBON	
	R363	QRD167J-273	27K 1/6W CARBON	
	R364	QRD167J-273	27K 1/6W CARBON	
	R365	QRD167J-563	56K 1/6W CARBON	
	R366	QRD167J-563	56K 1/6W CARBON	
	R369	QRD167J-680	68 1/6W CARBON	
	R370	QRD167J-680	68 1/6W CARBON	
	R371	QRD167J-390	39 1/6W CARBON	
	R372	QRD167J-390	39 1/6W CARBON	
	R373	QRD167J-151	150 1/6W CARBON	
	R374	QRD167J-151	150 1/6W CARBON	
	R375	QRD167J-101	100 1/6W CARBON	
	R376	QRD167J-101	100 1/6W CARBON	
	R377	QRD167J-101	100 1/6W CARBON	
	R378	QRD167J-101	100 1/6W CARBON	
	R379	QRD167J-912	9.1K 1/6W CARBON	
	R380	QRD167J-912	9.1K 1/6W CARBON	
	R381	QRD167J-912	9.1K 1/6W CARBON	
	R382	QRD167J-912	9.1K 1/6W CARBON	
	R383	QRD167J-222	2.2K 1/6W CARBON	
	R384	QRD167J-222	2.2K 1/6W CARBON	
	R385	QRD167J-222	2.2K 1/6W CARBON	
	R386	QRD167J-222	2.2K 1/6W CARBON	
	R387	QRD167J-151	150 1/6W CARBON	
	R388	QRD167J-151	150 1/6W CARBON	
	R391	QRD167J-103	10K 1/6W CARBON	
	R392	QRD167J-103	10K 1/6W CARBON	
	R393	QRD167J-101	100 1/6W CARBON	
	R394	QRD167J-101	100 1/6W CARBON	
	R395	QRD167J-151	150 1/6W CARBON	
	R396	QRD167J-151	150 1/6W CARBON	
	R397	QRD167J-102	1K 1/6W CARBON	
	R398	QRD167J-102	1K 1/6W CARBON	
	R401	QRD167J-332	3.3K 1/6W CARBON	
	R402	QRD167J-682	6.8K 1/6W CARBON	
	R403	QRD167J-103	10K 1/6W CARBON	
	R404	QRD167J-103	10K 1/6W CARBON	
	R405	QRD167J-102	1K 1/6W CARBON	
	R406	QRD167J-102	1K 1/6W CARBON	
	R407	QRD167J-681	680 1/6W CARBON	
	R408	QRD167J-103	10K 1/6W CARBON	
	R409	QRD167J-331	330 1/6W CARBON	
	R431	QRD167J-101	100 1/6W CARBON	
	R432	QRD167J-101	100 1/6W CARBON	
	R433	QRD167J-102	1K 1/6W CARBON	
	R434	QRD167J-101	100 1/6W CARBON	
	R435	QRD167J-561	560 1/6W CARBON	
	R436	QRD167J-561	560 1/6W CARBON	
	R437	QRD167J-561	560 1/6W CARBON	
	R501	QRD167J-102	1K 1/6W CARBON	
	R504	QRD167J-183	18K 1/6W CARBON	
	R505	QRD167J-183	18K 1/6W CARBON	
	R506	QRD167J-121	120 1/6W CARBON	
	R507	QRD167J-103	10K 1/6W CARBON	
	R508	QRD167J-332	3.3K 1/6W CARBON	
	R509	QRD167J-822	8.2K 1/6W CARBON	
	R510	QRD167J-113	11K 1/6W CARBON	
	R511	QRD167J-104	100K 1/6W CARBON	
	R512	QVPA601-203A	20K VARIABLE	
	R513	QVPA601-203A	20K VARIABLE	
	R514	QRD167J-103	10K 1/6W CARBON	
	R601	QRD167J-472	4.7K 1/6W CARBON	
	R602	QRD167J-472	4.7K 1/6W CARBON	
	R603	QVPA601-203A	20K VARIABLE	
	R604	QVPA601-203A	20K VARIABLE	
	R605	QRD167J-102	1K 1/6W CARBON	
	R606	QRD167J-104	100K 1/6W CARBON	
	R607	QRD167J-103	10K 1/6W CARBON	
	R608	QRD167J-273	27K 1/6W CARBON	
	R609	QRD167J-273	27K 1/6W CARBON	
	R610	QRD167J-224	220K 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R611	QRD167J-2R2	2.2 1/6W CARBON	
	R612	QRD167J-823	82K 1/6W CARBON	
	R613	QRD167J-104	100K 1/6W CARBON	
	R614	QRD167J-2R2	2.2 1/6W CARBON	
	R615	QRD167J-224	220K 1/6W CARBON	
	R616	QRD167J-333	33K 1/6W CARBON	
	R617	QRD167J-103	10K 1/6W CARBON	
	R618	QRD167J-514	510K 1/6W CARBON	
	R619	QRD167J-2R2	2.2 1/6W CARBON	
	R620	QRD167J-183	18K 1/6W CARBON	
	R621	QRD167J-363	36K 1/6W CARBON	
	R622	QRD167J-124	120K 1/6W CARBON	
	R623	QRD167J-472	4.7K 1/6W CARBON	
	R626	QRD167J-153	15K 1/6W CARBON	
	R627	QRD167J-333	33K 1/6W CARBON	
	R628	QRD167J-752	7.5K 1/6W CARBON	
	R629	QRD167J-752	7.5K 1/6W CARBON	
	R630	QRD167J-333	33K 1/6W CARBON	
	R631	QRD161J-221	220 1/6W CARBON	
	R632	QRD167J-513	51K 1/6W CARBON	
	R633	QRD167J-513	51K 1/6W CARBON	
	R634	QRD167J-683	68K 1/6W CARBON	
	R635	QRD167J-683	68K 1/6W CARBON	
	R636	QRD167J-684	680K 1/6W CARBON	
	R637	QRD161J-221	220 1/6W CARBON	
	R638	QRD167J-184	180K 1/6W CARBON	
	R701	QRD167J-470	47 1/6W CARBON	
	R702	QRD161J-221	220 1/6W CARBON	
	R703	QRD167J-101	100 1/6W CARBON	

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10217-102		
		E306805-010	SPACER	
		E306951-221SS	FL DISPLAY HOLDER	
		E406604-001	EARTH BRACKET	
		E306951-221SS	FL DISPLAY HOLDER	
		E70225-002	EARTH PLATE	
		E70859-001	EARTH PLATE	
		E75621-001	BRACKET	
	J201	EMV7123-025R	CONNECTOR 25pin	
	J202	EMV7123-025	CONNECTOR 25pin	
	J203	EMV7120-012	CONNECTOR 12pin	
	J204	EMV5120-012	PLUG ASSY 12pin	
	J301	EMN00TV-409A	4P PIN JACK	
	J302	QMS6302-136	HEADPHONE JACK	
	J451	GP1F32T	OPTICAL JACK	
	J601	EMV7123-013	CONNECTOR 13pin	
	J701	QMS3501-020	MINI JACK	

⚠ : SAFETY PARTS

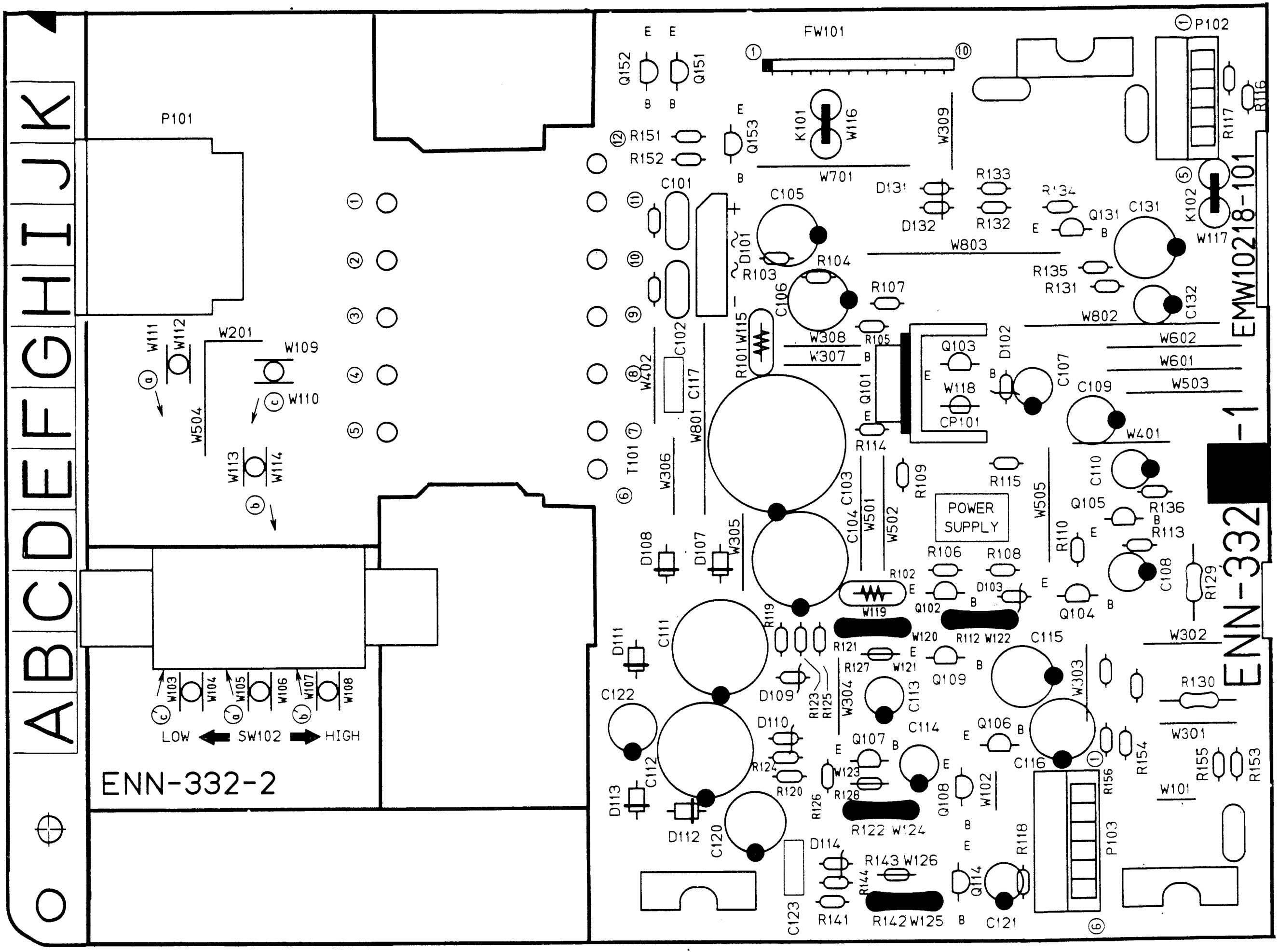
Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	L301	EQL4004-1R0	INDUCTOR	
	L303	EQL4004-1R0	INDUCTOR	
	L304	EQL4004-1R0	INDUCTOR	
	P101	VMC0107-010	WIRE CONNECTOR 10pin	
	P351	VMC0107-008	CONNECT TERMINAL 8pin	
	P501	EMV5109-010A	PLUG ASSY 10pin	
	X201	ECX0060-000EM	RESONATOR	
	X301	ECX0169-344KL	RESONATOR	
	FL201	ELU0001-136	FL TUBE	
	FW102	EWR35B-16LST	FLAT WIRE 5pin	
	FW103	EWR36B-13LST	FLAT WIRE 6pin	
	FW351	EWR38B-45LST	FLAT WIRE 8pin	
	MV351	QVJB94B-E24E	VARIABLE RESISTOR	
	SW101	QST4101-E20	PUSH SWITCH POWER ON/OFF	
	SW201	ESP0001-018	TACT SWITCH OPEN/CLOSE	
	SW202	ESP0001-018	TACT SWITCH REPEAT	
	SW203	ESP0001-018	TACT SWITCH PROGRAM	
	SW204	ESP0001-018	TACT SWITCH CANCEL	
	SW205	ESP0001-018	TACT SWITCH +10	
	SW206	ESP0001-018	TACT SWITCH EDIT	
	SW207	ESP0001-018	TACT SWITCH A/B	
	SW208	ESP0001-018	TACT SWITCH DDRP	
	SW209	ESP0001-018	TACT SWITCH RANDOM	
	SW210	ESP0001-018	TACT SWITCH PLAY/PAUSE	
	SW211	ESP0001-018	TACT SWITCH 1	
	SW212	ESP0001-018	TACT SWITCH 2	
	SW213	ESP0001-018	TACT SWITCH 3	
	SW214	ESP0001-018	TACT SWITCH 4	
	SW215	ESP0001-018	TACT SWITCH 5	
	SW216	ESP0001-018	TACT SWITCH 6	
	SW217	ESP0001-018	TACT SWITCH 7	
	SW218	ESP0001-018	TACT SWITCH 8	
	SW219	ESP0001-018	TACT SWITCH 9	
	SW220	ESP0001-018	TACT SWITCH 10	
	SW221	ESP0001-018	TACT SWITCH 11	
	SW222	ESP0001-018	TACT SWITCH 12	
	SW223	ESP0001-018	TACT SWITCH 13	
	SW224	ESP0001-018	TACT SWITCH 14	
	SW225	ESP0001-018	TACT SWITCH 15	
	SW226	ESP0001-018	TACT SWITCH 16	
	SW227	ESP0001-018	TACT SWITCH 17	
	SW228	ESP0001-018	TACT SWITCH 18	
	SW229	ESP0001-018	TACT SWITCH 19	
	SW230	ESP0001-018	TACT SWITCH 20	
	SW231	ESP0001-018	TACT SWITCH BACKWARD SCAN	
	SW232	ESP0001-018	TACT SWITCH FOWARD SCAN	
	SW233	ESP0001-018	TACT SWITCH BACKWARD SKIP	
	SW234	ESP0001-018	TACT SWITCH FOWARD SKIP	
	SW235	ESP0001-018	TACT SWITCH STOP	

⚠ : SAFETY PARTS

■ ENN-332 ☐ Power Supply PC Board Ass'y

Note : ENN-332 ☐ varies according to the areas employed. See note (1) when placing an order.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D112
C120
D114
R143
W126
R144
Q114
C123
R141
R142
W125
C121

Note (1)

PC Board Ass'y	Designated Areas
ENN-332 E	Continental Europe, Scandinavia
ENN-332 F	Universal Type
ENN-332 G	Germany

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
	Q101	2SB1187(E,F)	SILICON	ROHM	
	Q102	2SC2060(Q,R)	SILICON	ROHM	
	Q103	2SD1302(S,T)	SILICON	MATSUSHITA	
	Q104	2SA933S(R,S)	SILICON	ROHM	
	Q105	2SD1302(S,T)	SILICON	MATSUSHITA	
	Q106	DTA114YS	SILICON	ROHM	
	Q107	DTC114YS	SILICON	ROHM	
	Q108	2SA934(Q,R)	SILICON	ROHM	
	Q109	2SC2060(Q,R)	SILICON	ROHM	
	Q114	2SA733A(P,Q)	SILICON	NEC	
	Q131	2SA933S(R,S)	SILICON	ROHM	
	Q151	2SD2144S(VW)	SILICON	ROHM	
	Q152	2SD2144S(VW)	SILICON	ROHM	
	Q153	DTA114YS	SILICON	ROHM	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION		AREA
⚠	D101	S1VB20F	SILICON	SINDENGEN	
	D102	MTZ5.6JA	ZENER	ROHM	
	D103	MTZ5.6JA	ZENER	ROHM	
⚠	D107	ERA15-02L19	SILICON	KYOUDOU	
⚠	D108	ERA15-02L19	SILICON	KYOUDOU	
	D109	MTZ13JA	ZENER	ROHM	
	D110	MTZ13JA	ZENER	ROHM	
⚠	D111	ERA15-02L19	SILICON	KYOUDOU	
⚠	D112	ERA15-02L19	SILICON	KYOUDOU	
⚠	D113	ERA15-02L19	SILICON	KYOUDOU	
	D114	MTZ24JC	ZENER	ROHM	
	D131	1SS133	SILICON	ROHM	
	D132	1SS133	SILICON	ROHM	

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	C101	EFH001J-104			M.MYLAR	E
	C101	EFH001J-104			M.MYLAR	F
	C101	QFV81HJ-104	0.1MF	50V	T.FILM	G
	C102	EFH001J-104			M.MYLAR	E
	C102	EFH001J-104			M.MYLAR	F
	C102	QFV81HJ-104	0.1MF	50V	T.FILM	G
	C103	QETB1CM-338	3300MF	16V	ELECTRO	
	C104	QETB1CM-228	2200MF	16V	ELECTRO	
	C107	QETB1HM-225	2.2MF	50V	ELECTRO	
	C108	QETB1HM-225	2.2MF	50V	ELECTRO	
	C109	QETB0JM-227	220MF	6.3V	ELECTRO	
	C110	QETB1AM-476	47MF	10V	ELECTRO	
	C111	EET2502-108N	1000MF		ELECTRO	
	C112	EET2502-108N	1000MF		ELECTRO	
	C113	QETB1CM-476	47MF	16V	ELECTRO	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C114	QETB1CM-476	47MF 16V ELECTRO	
	C115	QETB1CM-227	220MF 16V ELECTRO	
	C116	QETB1CM-227	220MF 16V ELECTRO	
	C117	EFH001J-104	M.MYLAR	
	C120	QETB1HM-107	100MF 50V ELECTRO	
	C121	QETB1HM-475	4.7MF 50V ELECTRO	
	C122	QETB1EM-107	100MF 25V ELECTRO	
	C123	EFH001J-104	M.MYLAR	
	C131	QETB1CM-227	220MF 16V ELECTRO	
	C132	QETB1CM-226	22MF 16V ELECTRO	

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R101	PTH8L07BB2R2N1B	POSITIVE T	HE
	R102	PTH8L07BB2R2N1B	POSITIVE T	HE
	R105	QRD167J-222	2.2K 1/6W CARBON	
	R106	QRD167J-222	2.2K 1/6W CARBON	
	R107	QRD161J-221	220 1/6W CARBON	
	R108	QRD161J-221	220 1/6W CARBON	
	R109	QRD161J-221	220 1/6W CARBON	
	R110	QRD161J-221	220 1/6W CARBON	
⚠	R112	QRZ0077-100	10 1/4W FUSIBLE	
	R113	QRD167J-331	330 1/6W CARBON	
	R114	QRD167J-202	2K 1/6W CARBON	
	R115	QRD167J-332	3.3K 1/6W CARBON	
	R116	QRD167J-911	910 1/6W CARBON	
	R117	QRD167J-911	910 1/6W CARBON	
	R118	QRD167J-103	10K 1/6W CARBON	
	R119	QRD167J-512	5.1K 1/6W CARBON	
	R120	QRD167J-512	5.1K 1/6W CARBON	
⚠	R121	QRZ0077-100	10 1/4W FUSIBLE	
⚠	R122	QRZ0077-100	10 1/4W FUSIBLE	
	R123	QRD167J-512	5.1K 1/6W CARBON	
	R124	QRD167J-512	5.1K 1/6W CARBON	
	R125	QRD167J-512	5.1K 1/6W CARBON	
	R126	QRD167J-512	5.1K 1/6W CARBON	
	R127	QRD167J-121	120 1/6W CARBON	
	R128	QRD167J-121	120 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R129	ERD141J-472S	4.7K 1/4W CARBON	
	R130	ERD141J-472S	4.7K 1/4W CARBON	
	R131	QRD161J-221	220 1/6W CARBON	
	R132	QRD161J-221	220 1/6W CARBON	
	R133	QRD161J-221	220 1/6W CARBON	
	R134	QRD167J-822	8.2K 1/6W CARBON	
	R135	QRD167J-683	68K 1/6W CARBON	
	R136	QRD167J-103	10K 1/6W CARBON	
	R141	QRD167J-472	4.7K 1/6W CARBON	
⚠	R142	QRZ0077-560	56 1/4W FUSIBLE	
	R143	QRD167J-121	120 1/6W CARBON	
	R144	QRD167J-472	4.7K 1/6W CARBON	
	R151	QRD167J-103	10K 1/6W CARBON	
	R152	QRD167J-103	10K 1/6W CARBON	
	R153	QRD167J-271	270 1/6W CARBON	
	R154	QRD167J-271	270 1/6W CARBON	
	R155	QRD167J-271	270 1/6W CARBON	
	R156	QRD167J-271	270 1/6W CARBON	

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10218-101	PRINTED BOARD	
		E70306-001	HEAT SINK	
		E70859-001	EARTH PLATE	
		SBSE3008Z	SCREW	
	P101	QMCB001-E02H	AC SOCKET	
	P102	VMC0107-005	CONNECT TERMINAL 5pin	
	P103	VMC0107-006	CONNECT TERMINAL 6pin	
⚠	CP101	ICP-N15	I.C. PROTECTOR	
	FW101	EWR3AB-25LST	FLAT WIRE10pin	
	SW102	QSS1L22-E01	SLIDE SWITCH Voltage Selector	F

⚠ : SAFETY PARTS

Accessories List

⚠	Part Number	Part Name	Q'ty	Description	Areas
	E30580-1873B	Instruciton Book	1		Except EN
	E30580-1874B	Instruction Book	1		EN
	BT-20134	Warranty Card	1		G
	EWP302-011SS	Signal Cord	1		
	EWP805-001SS	1P Plug Cord	1		
	E300196-010B	Envelope	1		
⚠	QMP39G0-183E	Power Cord	1		Except U
⚠	QMP7530-183	Power Cord	1		U
	UM-3(DJ)-2PSA	Battery	1		
⚠	E04056	Siemens Plug	1		U
	E300196-063B	Envelope	1		
	E35497-022	Caution Sheet	1		
	RM-SX551U	Remote Control Unit	1		

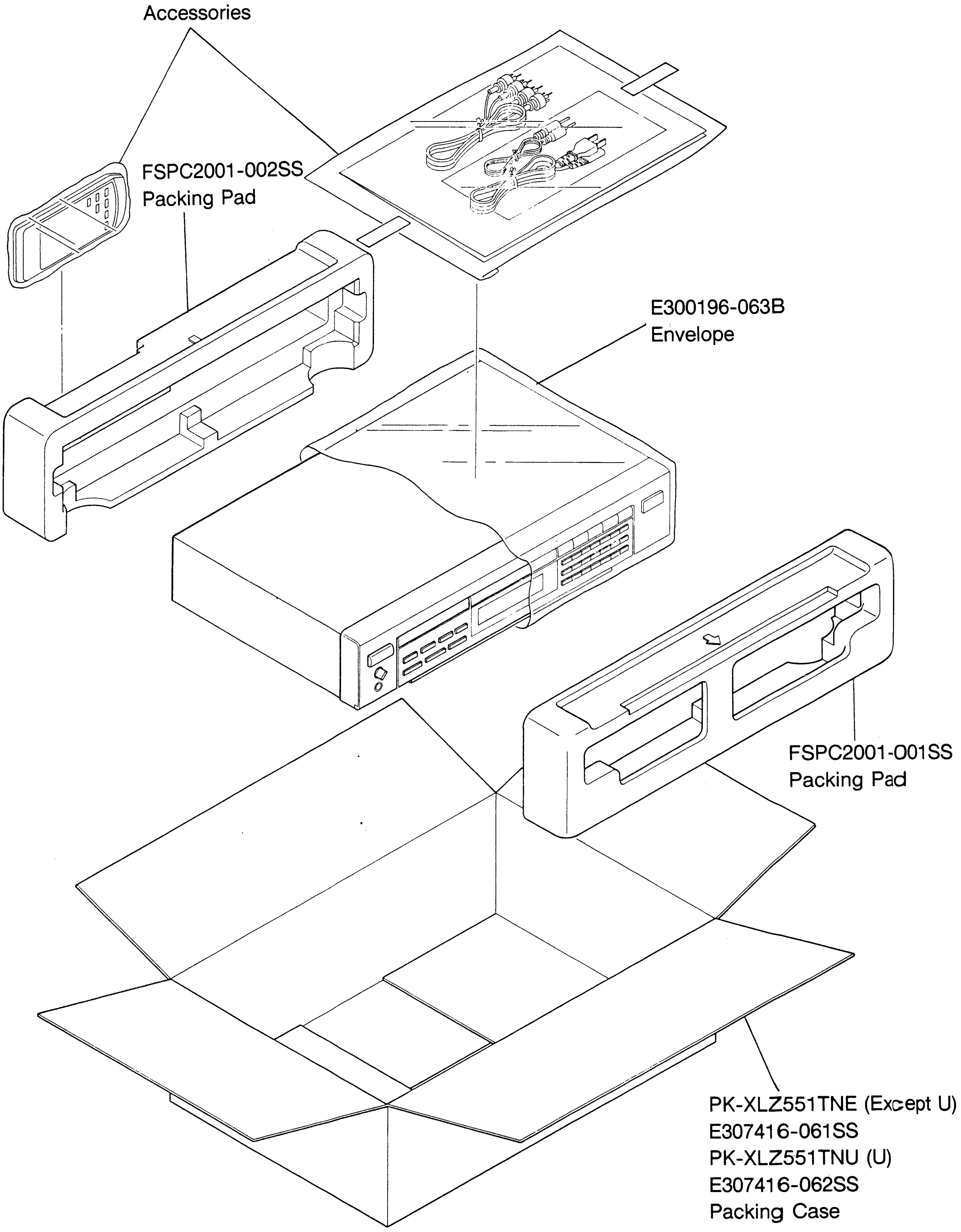
⚠: Safety Parts

The Marks Designated Areas

G ························ Germany
EF ······················ Continental Europe
EN ······················ Scandinavia

U ························ Universal Type
No mark indicates all areas.

Packing Materials and Part Numbers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PK-XLZ551TNU (U)
E307416-062SS
Packing Case

The Marks Designated Areas

G	Germany	U	Universal Type
EF	Continental Europe	No mark indicates all areas.	
EN	Scandinavia		

—MEMO—

PARTS LIST

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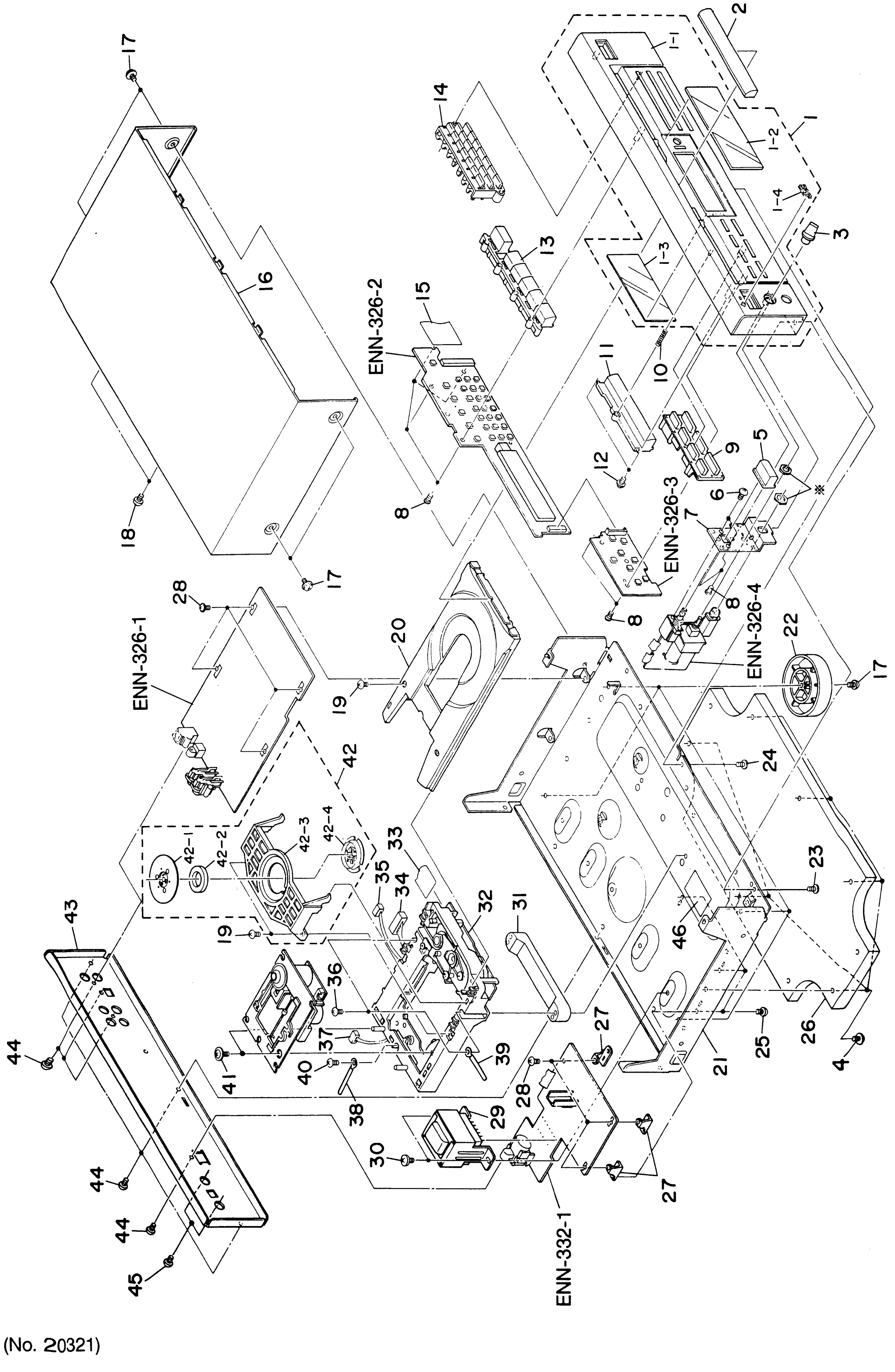
General Exploded View and Parts List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ENN-326-1
ENN-326-2
ENN-326-3
ENN-326-4
ENN-332-1
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※ mark indicates attached parts

■ Parts List

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	EFP-XLZ552BKE(S	Front Panel Ass'y	1		
	1-1	FSJC1001-004SS	Front Panel	1		
	1-2	E307145-002SS	Window Screen	1		
	1-3	E406285-001SS	Fl Screen	1		
	1-4	E72968-001	JVC Mark	1		
	2	E307156-002SS	Fitting	1		
	3	E74179-006	Volume Knob	1		
	4	GBSG3012Z	Screw	6		
	5	E406283-002SS	Power Button	1		
	6	SBST3006Z	Screw	2		
	7	FSKL4001-001SS	Headphone Bracket	1		
	8	SDSF2608Z	Screw	8		
	9	E307155-002SS	Push Button	1	Random	
	10	E406333-001	Spring	1		
	11	E307149-002SS	Button	1	Open/Close	
	12	E72405-001	Special Screw	2		
	13	E307151-004SS	Play Button	1		
	14	FSXP2001-002SS	Push Button	1	21key	
	15	EWR1RE-25TT	Flat Cord	1	25pin	
	16	E206906-003	Metal Cover	1		
	17	E406308-001	Special Screw	4		
	18	SBST3008M	Screw	6		
	19	SBSF3008M	Screw	3		
	20	E12289-222SS	Tray	1		
	21	E102355-002SS	Chassis Base	1		
	22	FSYH4001-00BSS	Foot Ass'y	4		
	23	SBSG3006M	Screw	1		
	24	SDSF3008M	Screw	1		
	25	SBSG3006Z	Screw	3		
	26	FSJD1001-002SS	Wood Base	1		
	27	E68587-004	Circuit Board Bracket	3		
	28	SBSG3008CC	Screw	7		
⚠	29	ETP1000-70EAJBS	Power Transformar	1		BS
⚠		ETP1000-70EAJ	Power Transformar	1		Except BS
	30	E65389-002	Special Screw	2		
	31	E307158-001SS	Stand	1		
	32	—	CD Mechanism Unit Ass'y	1	See page 3-5	
	33	EWR1DE-10TT	Flat Wire	1	13pin	
	34	EWS25A-B102	Socket Wire Ass'y	1	10pin	
	35	EWS254-B103	Socket Wire Ass'y	1	4pin	
	36	SBST3025Z	Screw	2		
	37	EWS256-B102	Socket Wire Ass'y	1	6pin	
	38	E72018-001	Wire Clamp	1		
	39	E72018-003	Wire Clamp	1		
	40	SBST3008Z	Screw	1		
	41	E75871-003	Special Screw	2		
	42	E306837-001	Clamper Base Ass'y	1		
	42-1	E306836-001	Yoke	1		
	42-2	E74897-002	Magnet	1		
	42-3	E26756-001	Clamper Base	1		
	42-4	E306835-001	Clamper	1		
	43	E207326-008SS	Rear Panel	1		A,BS
		E207326-007SS	Rear Panel	1		Except A,BS
	44	E73273-006	Special Screw	7		
	45	SBSF2608M	Screw	2		U

⚠: Safety Parts

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	46	E406507-001	Caution Label	1		
	—	E61029-005	Number Label	1		
	—	E70891-001	Class 1 Label	1		EN
	—	E70027-001	Approval Label	1		G
	—	E70419-002F	F Mark Label	1		EF
	—	QZL1031-101	SEV Label	1		

⚠: Safety Parts

The Marks Designated Areas

G ······················ Germany
EF ······················ Continental Europe
EN ······················ Scandinavia

A ······················ Australia
BS ···················· the U.K
No mark indicates all areas.

■ Parts List

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	EFP-XLZ552BKE(S	Front Panel Ass'y	1		
	1-1	FSJC1001-004SS	Front Panel	1		
	1-2	E307145-002SS	Window Screen	1		
	1-3	E406285-001SS	Fl Screen	1		
	1-4	E72968-001	JVC Mark	1		
	2	E307156-002SS	Fitting	1		
	3	E74179-006	Volume Knob	1		
	4	GBSG3012Z	Screw	6		
	5	E406283-002SS	Power Button	1		
	6	SBST3006Z	Screw	2		
	7	FSKL4001-001SS	Headphone Bracket	1		
	8	SDSF2608Z	Screw	8		
	9	E307155-002SS	Push Button	1	Random	
	10	E406333-001	Spring	1		
	11	E307149-002SS	Button	1	Open/Close	
	12	E72405-001	Special Screw	2		
	13	E307151-004SS	Play Button	1		
	14	FSXP2001-002SS	Push Button	1	21key	
	15	EWR1RE-25TT	Flat Cord	1	25pin	
	16	E206906-003	Metal Cover	1		
	17	E406308-001	Special Screw	4		
	18	SBST3008M	Screw	6		
	19	SBSF3008M	Screw	3		
	20	E12289-222SS	Tray	1		
	21	E102355-002SS	Chassis Base	1		
	22	FSYH4001-00BSS	Foot Ass'y	4		
	23	SBSG3006M	Screw	1		
	24	SDSF3008M	Screw	1		
	25	SBSG3006Z	Screw	3		
	26	FSJD1001-002SS	Wood Base	1		
	27	E68587-004	Circuit Board Bracket	3		
	28	SBSG3008CC	Screw	7		
⚠	29	ETP1000-70EAJBS	Power Transformar	1		BS
⚠		ETP1000-70EAJ	Power Transformar	1		Except BS
	30	E65389-002	Special Screw	2		
	31	E307158-001SS	Stand	1		
	32	——	CD Mechanism Unit Ass'y	1	See page 3-5	
	33	EWR1DE-10TT	Flat Wire	1	13pin	
	34	EWS25A-B102	Socket Wire Ass'y	1	10pin	
	35	EWS254-B103	Socket Wire Ass'y	1	4pin	
	36	SBST3025Z	Screw	2		
	37	EWS256-B102	Socket Wire Ass'y	1	6pin	
	38	E72018-001	Wire Clamp	1		
	39	E72018-003	Wire Clamp	1		
	40	SBST3008Z	Screw	1		
	41	E75871-003	Special Screw	2		
	42	E306837-001	Clamper Base Ass'y	1		
	42-1	E306836-001	Yoke	1		
	42-2	E74897-002	Magnet	1		
	42-3	E26756-001	Clamper Base	1		
	42-4	E306835-001	Clamper	1		
	43	E207326-008SS	Rear Panel	1		A,BS
		E207326-007SS	Rear Panel	1		Except A,BS
	44	E73273-006	Special Screw	7		
	45	SBSF2608M	Screw	2		U

⚠: Safety Parts

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	46	E406507-001	Caution Label	1		
	—	E61029-005	Number Label	1		
	—	E70891-001	Class 1 Label	1		EN
	—	E70027-001	Approval Label	1		G
	—	E70419-002F	F Mark Label	1		EF
	—	QZL1031-101	SEV Label	1		

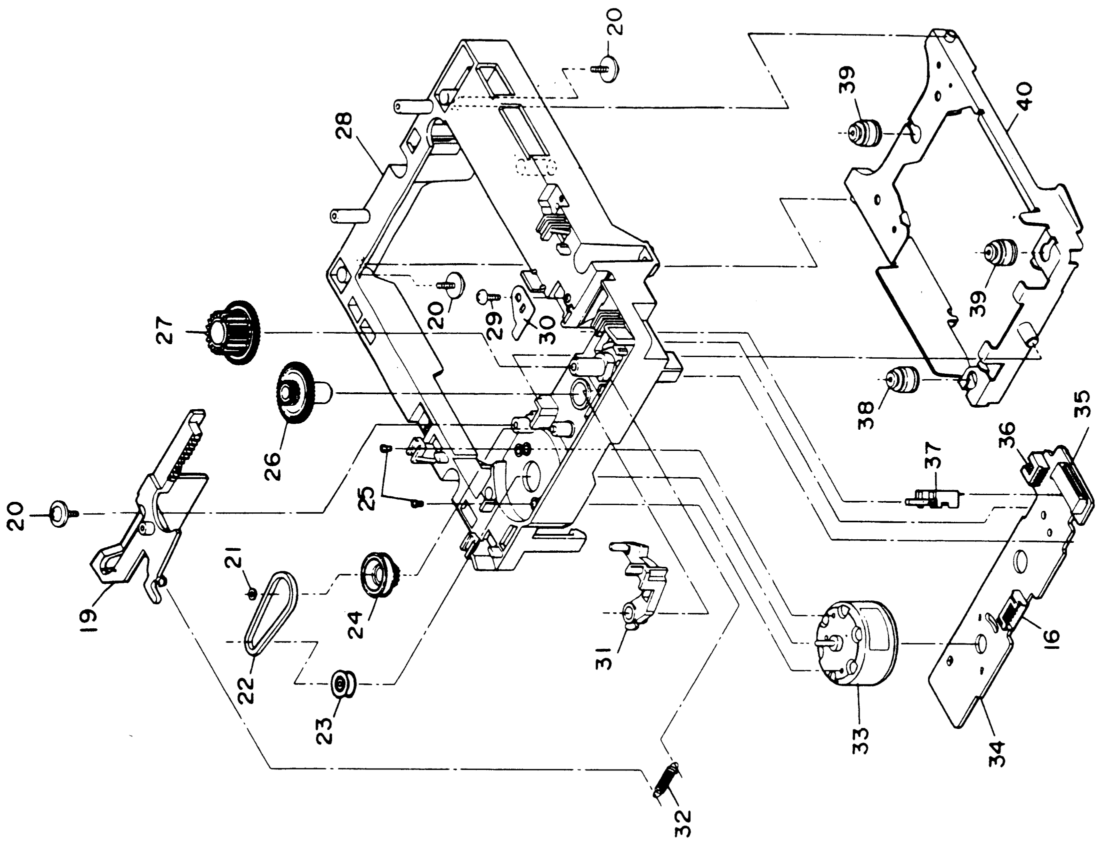
⚠: Safety Parts

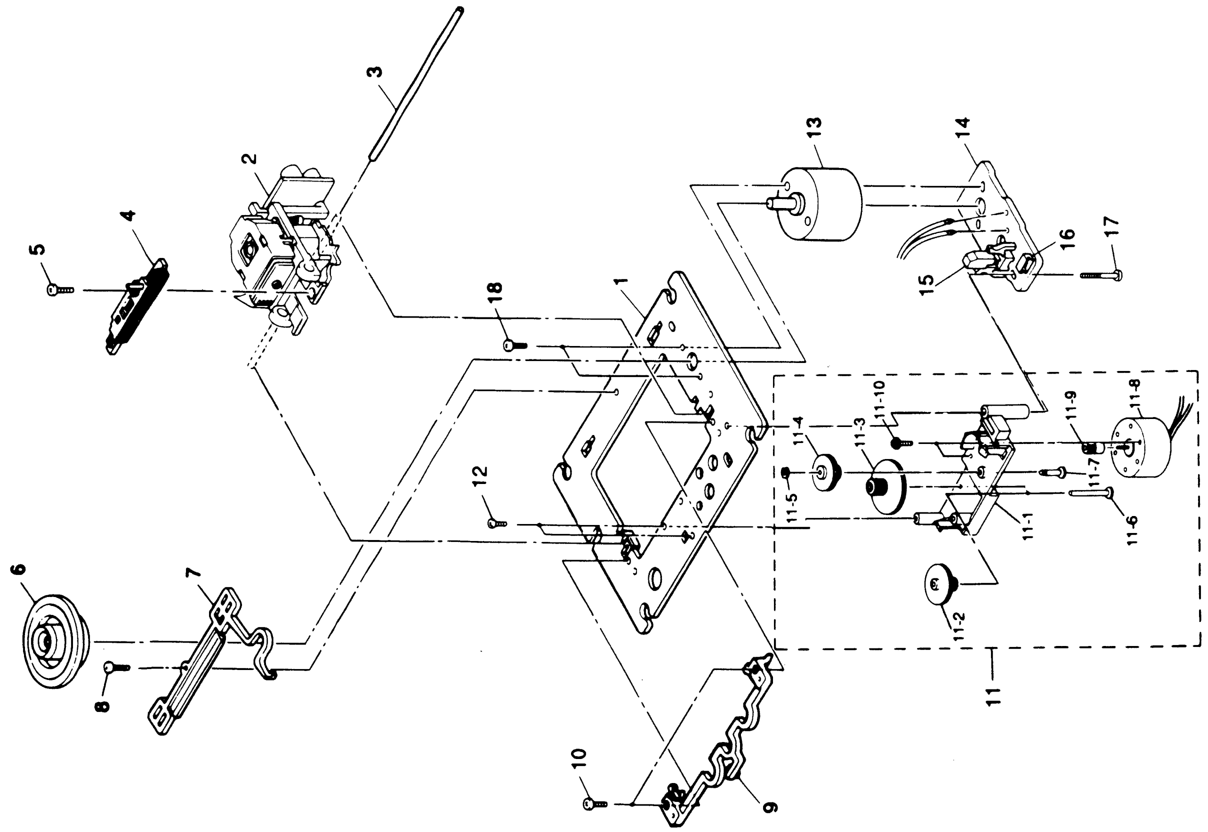
The Marks Designated Areas

G ························ Germany
EF ······················ Continental Europe
EN ····················· Scandinavia

A ······················ Australia
BS ···················· the U.K
No mark indicates all areas.

CD Mechanism Ass'y and Parts List





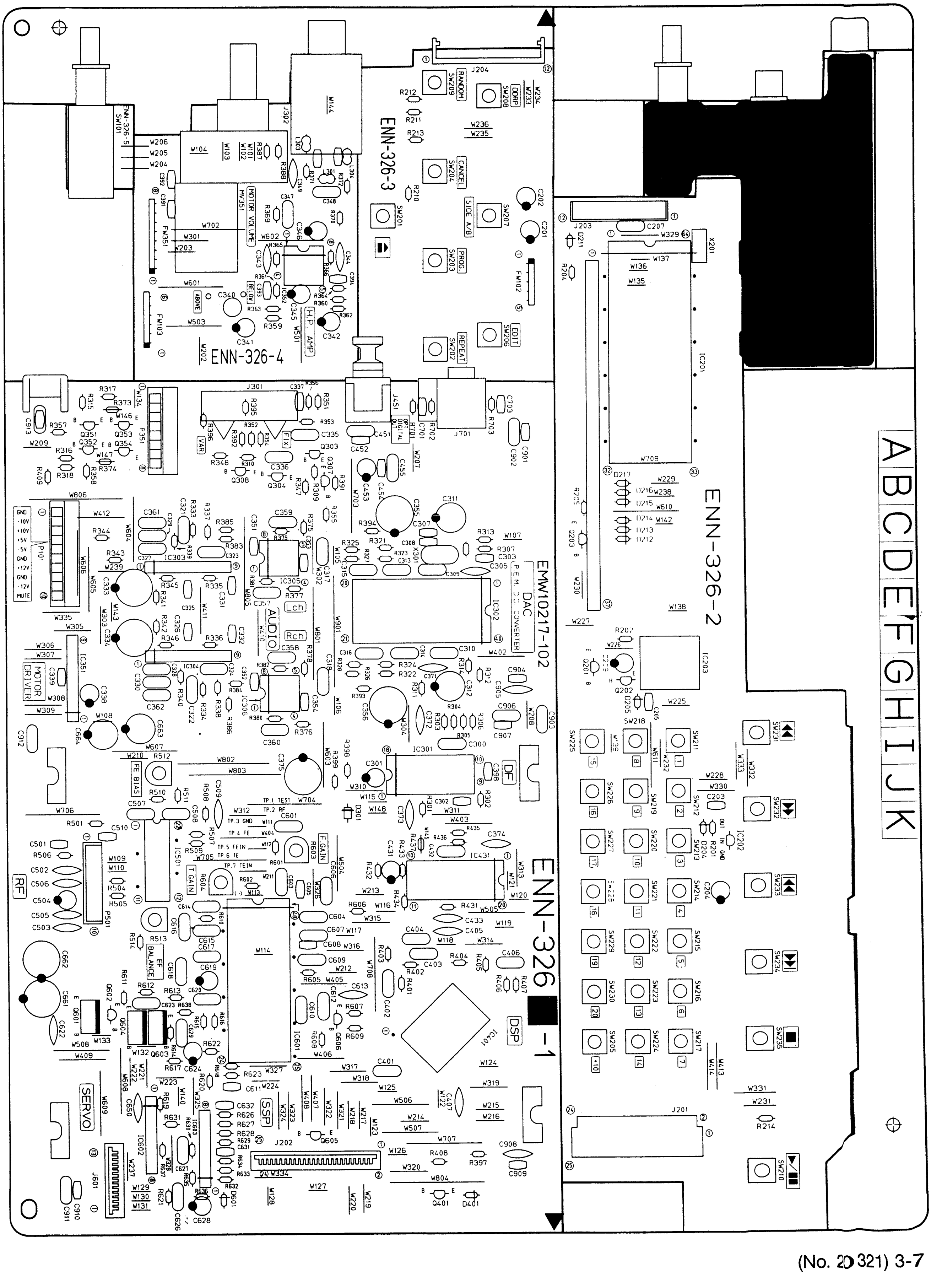
■Parts List

Item	Part Number	Part Name	Q'ty	Description	Areas
1	E26487-003	Mechanism Base	1		
2	OPTIMA-5S	Pick up Ass'y	1		
3	E74930-003	Shaft	1		
4	E306282-001	Rack Ass'y	1		
5	SPSH2050M	Screw	1		
6	E406064-002	Turn Table Ass'y	1		
7	E306275-003	Support	1		
8	SDST2005Z	Screw	1		
9	E306277-001	Holder	1		
10	SDST2004Z	Screw	2		
11	SE10351-11	Gear Ass'y	1		
11-1	E306276-001	Gear Base	1		
11-2	E75444-001	Gear	1		
11-3	E75443-001	Gear	1		
11-4	E75445-001	Gear	1		
11-5	WDM163550	Slit Washer	1		
11-6	E75494-003	Shaft	2		
11-7	E75494-002	Shaft	1		
11-8	HKN-3A6RDNV	Feed Motor	1		
11-9	E75493-001	Pinion Gear	1		
11-10	LPSH1735Z	Screw	2		
12	E72713-001	Screw	2		
13	E74539-001B	Spindle Motor	1		
14	E12114-005(S)	Circuit Board	1		
15	ESB1100-005	Leaf Switch	1	S001	
16	EMV5109-006B	6P Plug Ass'y	2	P011	
17	E75832-001	Screw	1		
18	SDSP2003N	Screw	2		
19	E306834-001	Cam	1		
20	E65923-003	Screw	3		
21	E72024-001	Speed Nut	1		
22	E75950-002	Belt	1		
23	E75984-001	Motor Pulley	1		
24	E75985-001	Gear (1)	1		
25	SPSK2640Z	Screw	2		
26	E75986-002	Gear (2)	1		
27	E75987-001	Gear (3)	1		
28	E12288-002	Loading Base	1		
29	SBSF3008Z	Screw	1		
30	E75988-001	Plate	1		
31	E306833-001	Lever	1		
32	E75989-001	Spring	1		
33	MMN-6F1LB8Q	Loading Motor	1		
34	EMW10060-002(S)	Circuit Board	1		
35	EMV7123-013R	Connector	1	13Pin	
36	EMV5109-004B	Plug Ass'y	1	4Pin	
37	ESS1200-002	Switch	1		
38	E75609-002	Insulator	1		
39	E75609-001	Insulator	2		
40	E307087-001	Elevator Base Ass'y	1		

Printed Circuit Board Ass'y and Parts List

■ENN-326 ☐ CD Main PC Board Ass'y

Note : ENN-326 ☐ varies according to the areas employed. See note (1) when placing an order.


ENN-326-1
ENN-326-2
ENN-326-3
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ENN-326-5
EMW10217-102
P.C.M. DAC CONVERTER
MOTOR VOLUME
MOTOR DRIVER
H.P. AMP
FE BIAS
F.GAIN
T.GAIN
BALANCE
SERVO
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Note (1)

PC Board Ass'y	Designated Areas
ENN-326 B BS	the U.K
ENN-326 E	Continental Europe, Scandinavia
ENN-326 A	Australia
ENN-326 G	Germany

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q201	DTA114YS	SILICON ROHM	
	Q202	DTC114YS	SILICON ROHM	
	Q203	2SC1740S(R,S)	SILICON ROHM	
	Q303	2SC3068	SILICON SANYO	
	Q304	2SC3068	SILICON SANYO	
	Q307	2SC3068	SILICON SANYO	
	Q308	2SC3068	SILICON SANYO	
	Q351	2SD1302(S,T)	SILICON MATSUSHITA	
	Q352	2SD1302(S,T)	SILICON MATSUSHITA	
	Q353	2SD1302(S,T)	SILICON MATSUSHITA	
	Q354	2SD1302(S,T)	SILICON MATSUSHITA	
	Q401	DTA114YS	SILICON ROHM	
	Q601	2SD2037(E,F)	SILICON ROHM	
	Q602	2SA934(Q,R)	SILICON ROHM	
	Q603	2SD2037(E,F)	SILICON ROHM	
	Q604	2SB1357(E,F)	SILICON ROHM	
	Q605	DTC144ES	SILICON ROHM	
	Q606	2SC1740S(R,S)	SILICON ROHM	

I. C. s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC201	MN171202JPJ1	I.C. MATSUSHITA	
	IC202	MN1281(P,Q)	I.C. MATSUSHITA	
	IC203	SPS-420-1	I.C. SANYO	
	IC301	SM5840DP	I.C. KANEMATSU	
	IC302	JCE4501	I.C. MATSUSHITA	
	IC303	NJM5532S	I.C. DAINICHI	
	IC304	NJM5532S	I.C. DAINICHI	
	IC305	NJM5532D	I.C. DAINICHI	
	IC306	NJM5532D	I.C. DAINICHI	
	IC351	BA6218	I.C. ROHM	
	IC352	M5218AP	I.C. MITSUBISHI	
	IC401	CXD2500AQ	I.C. 1680	
	IC431	JCE4300	I.C. FUJITSU	
	IC501	CXA1571S	I.C. 1680	
	IC601	CXA1372S	I.C. 1680	
	IC602	STA341M(A)	I.C. SANKEN	
	IC603	M5218AL	I.C. MITSUBISHI	

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D204	1SS133	SILICON ROHM	
	D205	1SS133	SILICON ROHM	
	D211	1SS119	SILICON HITACHI	
	D212	1SS119	SILICON HITACHI	
	D213	1SS119	SILICON HITACHI	
	D214	1SS119	SILICON HITACHI	
	D215	1SS119	SILICON HITACHI	
	D216	1SS119	SILICON HITACHI	
	D217	1SS119	SILICON HITACHI	
⚠	D301	ERA15-02L19	SILICON KYOUDOU	
	D401	1SS133	SILICON ROHM	
	D601	1SS133	SILICON ROHM	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C201	QER51HM-475	4.7MF 50V ELECTRO	
	C202	QER51HM-475	4.7MF 50V ELECTRO	
	C203	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C204	QER50JM-107	100MF 6.3V ELECTRO	
	C205	QCBB1HK-331	330PF 50V CERAMIC	
	C207	QCZ0205-155	1.5MF 25V CERAMIC	
	C209	QER50JM-476	47MF 6.3V ELECTRO	
	C300	QFV81HJ-104	0.1MF 50V T.FILM	
	C301	QETB1AM-107	100MF 10V ELECTRO	
	C302	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C303	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C305	QCS21HJ-470	47PF 50V CERAMIC	
	C307	QCT30CH-120	12PF 50V CERAMIC	
	C308	QCT30CH-3R3	3.3PF 50V CERAMIC	
	C309	QCZ0205-155	1.5MF 25V CERAMIC	
	C310	QCZ0205-155	1.5MF 25V CERAMIC	
	C311	QETB1HM-107	100MF 50V ELECTRO	
	C312	QETB1HM-107	100MF 50V ELECTRO	
	C313	QCZ0205-155	1.5MF 25V CERAMIC	
	C314	QCZ0205-155	1.5MF 25V CERAMIC	
	C315	QCZ0205-155	1.5MF 25V CERAMIC	
	C316	QCZ0205-155	1.5MF 25V CERAMIC	
	C317	QFP81HJ-471	470PF 50V POLY	
	C318	QFP81HJ-471	470PF 50V POLY	
	C321	QFN81HJ-152	1500PF 50V MYLAR	
	C322	QFN81HJ-152	1500PF 50V MYLAR	
	C323	QFN81HJ-152	1500PF 50V MYLAR	
	C324	QFN81HJ-152	1500PF 50V MYLAR	
	C325	EET5002-106N	10MF ELECTRO	
	C326	EET5002-106N	10MF ELECTRO	
	C327	QFP81HJ-392	3900PF 50V POLY	
	C328	QFP81HJ-392	3900PF 50V POLY	
	C329	EFZ0101-223S	0.022MF M.MYLAR	
	C330	EFZ0101-223S	0.022MF M.MYLAR	
	C331	EET5002-106N	10MF ELECTRO	
	C332	EET5002-106N	10MF ELECTRO	
	C333	EET2502-107N	100MF ELECTRO	
	C334	EET2502-107N	100MF ELECTRO	
	C335	QFP81HJ-822	8200PF 50V POLY	
	C336	QFP81HJ-822	8200PF 50V POLY	
	C337	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C338	QETB1AM-107	100MF 10V ELECTRO	
	C340	QEN51HM-475	4.7MF 50V NON POLE	
	C341	QETB1HM-475	4.7MF 50V ELECTRO	
	C342	QETB1HM-475	4.7MF 50V ELECTRO	
	C343	QCS21HJ-680	68PF 50V CERAMIC	
	C344	QCS21HJ-680	68PF 50V CERAMIC	
	C345	QETB1CM-476	47MF 16V ELECTRO	
	C346	QETB1CM-476	47MF 16V ELECTRO	
	C347	QFN81HJ-103	0.01MF 50V MYLAR	
	C348	QFN81HJ-103	0.01MF 50V MYLAR	
	C349	QCS21HJ-471	470PF 50V CERAMIC	
	C355	QETB1CM-108	1000MF 16V ELECTRO	
	C356	QETB1CM-108	1000MF 16V ELECTRO	
	C357	QFN81HJ-471	470PF 50V MYLAR	
	C358	QFN81HJ-471	470PF 50V MYLAR	
	C359	QFN81HJ-471	470PF 50V MYLAR	
	C360	QFN81HJ-471	470PF 50V MYLAR	
	C371	QCS21HJ-5R0	5PF 50V CERAMIC	
	C372	QCS21HJ-5R0	5PF 50V CERAMIC	
	C373	QCS21HJ-5R0	5PF 50V CERAMIC	
	C374	QCS21HJ-5R0	5PF 50V CERAMIC	
	C375	QETB1CM-477	470MF 16V ELECTRO	
	C391	QCXB1CM-562	5600PF 16V CERAMIC	
	C392	QCXB1CM-562	5600PF 16V CERAMIC	
	C398	QCBB1HK-221	220PF 50V CERAMIC	
	C401	QCZ0205-155	1.5MF 25V CERAMIC	
	C402	QFN81HJ-473	0.047MF 50V MYLAR	
	C403	QFV81HJ-104	0.1MF 50V T.FILM	
	C404	QFN81HJ-152	1500PF 50V MYLAR	
	C405	QCF21HP-102	1000PF 50V CERAMIC	
	C406	QCZ0205-155	1.5MF 25V CERAMIC	
	C407	QCS21HJ-680	68PF 50V CERAMIC	
	C431	QETB1AM-107	100MF 10V ELECTRO	
	C432	QFV81HJ-104	0.1MF 50V T.FILM	
	C433	QCS21HJ-5R0	5PF 50V CERAMIC	
	C451	QETB1CM-107	100MF 16V ELECTRO	
	C454	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C501	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C502	QCS21HJ-100	10PF 50V CERAMIC	
	C503	QCS21HJ-100	10PF 50V CERAMIC	
	C504	QETB1AM-476	47MF 10V ELECTRO	
	C505	QCS21HJ-820	82PF 50V CERAMIC	
	C506	QCS21HJ-101	100PF 50V CERAMIC	
	C507	QCZ0205-155	1.5MF 25V CERAMIC	
	C508	QCZ0205-155	1.5MF 25V CERAMIC	
	C509	QCS21HJ-220	22PF 50V CERAMIC	
	C510	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C601	QFN81HJ-182	1800PF 50V MYLAR	
	C603	QFN81HJ-222	2200PF 50V MYLAR	
	C604	QFN81HJ-222	2200PF 50V MYLAR	
	C605	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C606	QFN81HJ-333	0.033MF 50V MYLAR	
	C607	QFN81HJ-103	0.01MF 50V MYLAR	
	C608	QCHB1EZ-223	0.022MF 25V CERAMIC	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C609	QFN81HJ-333	0.033MF 50V MYLAR	
	C610	QCZ0205-155	1.5MF 25V CERAMIC	
	C611	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C612	QFV81HJ-104	0.1MF 50V T.FILM	
	C613	QCS21HJ-471	470PF 50V CERAMIC	
	C614	QFN81HJ-104	0.1MF 50V MYLAR	
	C615	QFN81HJ-333	0.033MF 50V MYLAR	
	C616	QFN81HJ-473	0.047MF 50V MYLAR	
	C617	QFN81HJ-473	0.047MF 50V MYLAR	
	C618	QFN81HJ-473	0.047MF 50V MYLAR	
	C619	QETB1HM-475	4.7MF 50V ELECTRO	
	C620	QFN81HJ-104	0.1MF 50V MYLAR	
	C622	QCF21HP-223	0.022MF 50V CERAMIC	
	C623	QFN81HJ-473	0.047MF 50V MYLAR	
	C624	QETB1EM-106	10MF 25V ELECTRO	
	C626	QFN81HJ-183	0.018MF 50V MYLAR	
	C627	QFN81HJ-103	0.01MF 50V MYLAR	
	C628	QETB1HM-475	4.7MF 50V ELECTRO	
	C629	QFN81HJ-333	0.033MF 50V MYLAR	
	C631	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C632	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C661	QETB1CM-107	100MF 16V ELECTRO	
	C662	QETB1CM-107	100MF 16V ELECTRO	
	C663	QETB1HM-107	100MF 50V ELECTRO	
	C701	QCBB1HK-101	100PF 50V CERAMIC	
	C902	QCS21HJ-101	100PF 50V CERAMIC	
	C905	QCT26CH-180	18PF 50V CERAMIC	
	C908	QCT26CH-180	18PF 50V CERAMIC	

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R201	QRD167J-821	820 1/6W CARBON	
	R202	QRD167J-472	4.7K 1/6W CARBON	
	R204	QRD167J-471	470 1/6W CARBON	
	R205	QRD167J-103	10K 1/6W CARBON	
	R210	QRD167J-473	47K 1/6W CARBON	
	R211	QRD167J-473	47K 1/6W CARBON	
	R212	QRD167J-473	47K 1/6W CARBON	
	R213	QRD167J-473	47K 1/6W CARBON	
	R214	QRD167J-473	47K 1/6W CARBON	
	R301	QRD167J-101	100 1/6W CARBON	
	R302	QRD167J-472	4.7K 1/6W CARBON	
	R303	QRD167J-561	560 1/6W CARBON	
	R304	QRD167J-561	560 1/6W CARBON	
	R305	QRD167J-561	560 1/6W CARBON	
	R306	QRD167J-561	560 1/6W CARBON	
	R307	QRD167J-103	10K 1/6W CARBON	
	R309	QRD167J-910	91 1/6W CARBON	
	R310	QRD167J-910	91 1/6W CARBON	
	R311	QRD167J-181	180 1/6W CARBON	
	R312	QRD167J-300	30 1/6W CARBON	
	R313	QRD167J-300	30 1/6W CARBON	
	R314	QRD167J-300	30 1/6W CARBON	
	R315	QRD167J-103	10K 1/6W CARBON	
	R316	QRD167J-103	10K 1/6W CARBON	
	R317	QRD167J-103	10K 1/6W CARBON	
	R318	QRD167J-103	10K 1/6W CARBON	
	R321	QRD167J-183	18K 1/6W CARBON	
	R322	QRD167J-183	18K 1/6W CARBON	
	R323	QRD167J-183	18K 1/6W CARBON	
	R324	QRD167J-183	18K 1/6W CARBON	
	R325	QRD167J-183	18K 1/6W CARBON	
	R326	QRD167J-183	18K 1/6W CARBON	
	R327	QRD167J-183	18K 1/6W CARBON	
	R328	QRD167J-183	18K 1/6W CARBON	
	R333	QRD167J-222	2.2K 1/6W CARBON	
	R334	QRD167J-222	2.2K 1/6W CARBON	
	R335	QRD167J-222	2.2K 1/6W CARBON	
	R336	QRD167J-222	2.2K 1/6W CARBON	
	R337	QRD167J-561	560 1/6W CARBON	
	R338	QRD167J-561	560 1/6W CARBON	
	R339	QRD167J-511	510 1/6W CARBON	
	R340	QRD167J-511	510 1/6W CARBON	
	R341	QRD167J-682	6.8K 1/6W CARBON	
	R342	QRD167J-682	6.8K 1/6W CARBON	
	R343	QRD167J-273	27K 1/6W CARBON	
	R344	QRD167J-273	27K 1/6W CARBON	
	R347	QRD167J-910	91 1/6W CARBON	
	R348	QRD167J-910	91 1/6W CARBON	
	R351	QRD167J-103	10K 1/6W CARBON	
	R352	QRD167J-103	10K 1/6W CARBON	
	R353	QRD167J-151	150 1/6W CARBON	
	R354	QRD167J-151	150 1/6W CARBON	
	R355	QRD167J-473	47K 1/6W CARBON	
	R356	QRD167J-684	680K 1/6W CARBON	
	R357	QRD167J-151	150 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R358	QRD167J-151	150 1/6W CARBON	
	R359	QRD167J-473	47K 1/6W CARBON	
	R360	QRD167J-473	47K 1/6W CARBON	
	R361	QRD167J-103	10K 1/6W CARBON	
	R362	QRD167J-103	10K 1/6W CARBON	
	R363	QRD167J-273	27K 1/6W CARBON	
	R364	QRD167J-273	27K 1/6W CARBON	
	R365	QRD167J-563	56K 1/6W CARBON	
	R366	QRD167J-563	56K 1/6W CARBON	
	R369	QRD167J-680	68 1/6W CARBON	
	R370	QRD167J-680	68 1/6W CARBON	
	R371	QRD167J-390	39 1/6W CARBON	
	R372	QRD167J-390	39 1/6W CARBON	
	R373	QRD167J-151	150 1/6W CARBON	
	R374	QRD167J-151	150 1/6W CARBON	
	R375	QRD167J-101	100 1/6W CARBON	
	R376	QRD167J-101	100 1/6W CARBON	
	R377	QRD167J-101	100 1/6W CARBON	
	R378	QRD167J-101	100 1/6W CARBON	
	R379	QRD167J-912	9.1K 1/6W CARBON	
	R380	QRD167J-912	9.1K 1/6W CARBON	
	R381	QRD167J-912	9.1K 1/6W CARBON	
	R382	QRD167J-912	9.1K 1/6W CARBON	
	R383	QRD167J-222	2.2K 1/6W CARBON	
	R384	QRD167J-222	2.2K 1/6W CARBON	
	R385	QRD167J-222	2.2K 1/6W CARBON	
	R386	QRD167J-222	2.2K 1/6W CARBON	
	R387	QRD167J-151	150 1/6W CARBON	
	R388	QRD167J-151	150 1/6W CARBON	
	R391	QRD167J-103	10K 1/6W CARBON	
	R392	QRD167J-103	10K 1/6W CARBON	
	R393	QRD167J-101	100 1/6W CARBON	
	R394	QRD167J-101	100 1/6W CARBON	
	R395	QRD167J-151	150 1/6W CARBON	
	R396	QRD167J-151	150 1/6W CARBON	
	R397	QRD167J-102	1K 1/6W CARBON	
	R398	QRD167J-102	1K 1/6W CARBON	
	R401	QRD167J-332	3.3K 1/6W CARBON	
	R402	QRD167J-682	6.8K 1/6W CARBON	
	R403	QRD167J-103	10K 1/6W CARBON	
	R404	QRD167J-103	10K 1/6W CARBON	
	R405	QRD167J-102	1K 1/6W CARBON	
	R406	QRD167J-102	1K 1/6W CARBON	
	R407	QRD167J-681	680 1/6W CARBON	
	R408	QRD167J-103	10K 1/6W CARBON	
	R409	QRD167J-331	330 1/6W CARBON	
	R431	QRD167J-101	100 1/6W CARBON	
	R432	QRD167J-101	100 1/6W CARBON	
	R433	QRD167J-102	1K 1/6W CARBON	
	R434	QRD167J-101	100 1/6W CARBON	
	R435	QRD167J-561	560 1/6W CARBON	
	R436	QRD167J-561	560 1/6W CARBON	
	R437	QRD167J-561	560 1/6W CARBON	
	R501	QRD167J-102	1K 1/6W CARBON	
	R504	QRD167J-183	18K 1/6W CARBON	
	R505	QRD167J-183	18K 1/6W CARBON	
	R506	QRD167J-121	120 1/6W CARBON	
	R507	QRD167J-103	10K 1/6W CARBON	
	R508	QRD167J-332	3.3K 1/6W CARBON	
	R509	QRD167J-822	8.2K 1/6W CARBON	
	R510	QRD167J-113	11K 1/6W CARBON	
	R511	QRD167J-104	100K 1/6W CARBON	
	R512	QVPA601-203A	20K VARIABLE	
	R513	QVPA601-203A	20K VARIABLE	
	R514	QRD167J-103	10K 1/6W CARBON	
	R601	QRD167J-472	4.7K 1/6W CARBON	
	R602	QRD167J-472	4.7K 1/6W CARBON	
	R603	QVPA601-203A	20K VARIABLE	
	R604	QVPA601-203A	20K VARIABLE	
	R605	QRD167J-102	1K 1/6W CARBON	
	R606	QRD167J-104	100K 1/6W CARBON	
	R607	QRD167J-103	10K 1/6W CARBON	
	R608	QRD167J-273	27K 1/6W CARBON	
	R609	QRD167J-273	27K 1/6W CARBON	
	R610	QRD167J-224	220K 1/6W CARBON	
	R611	QRD167J-2R2	2.2 1/6W CARBON	
	R612	QRD167J-823	82K 1/6W CARBON	
	R613	QRD167J-104	100K 1/6W CARBON	
	R614	QRD167J-2R2	2.2 1/6W CARBON	
	R615	QRD167J-224	220K 1/6W CARBON	
	R616	QRD167J-333	33K 1/6W CARBON	
	R617	QRD167J-103	10K 1/6W CARBON	
	R618	QRD167J-514	510K 1/6W CARBON	
	R619	QRD167J-2R2	2.2 1/6W CARBON	
	R620	QRD167J-183	18K 1/6W CARBON	
	R621	QRD167J-363	36K 1/6W CARBON	
	R622	QRD167J-124	120K 1/6W CARBON	
	R623	QRD167J-472	4.7K 1/6W CARBON	
	R626	QRD167J-153	15K 1/6W CARBON	
	R627	QRD167J-333	33K 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R628	QRD167J-752	7.5K 1/6W CARBON	
	R629	QRD167J-752	7.5K 1/6W CARBON	
	R630	QRD167J-333	33K 1/6W CARBON	
	R631	QRD161J-221	220 1/6W CARBON	
	R632	QRD167J-513	51K 1/6W CARBON	
	R633	QRD167J-513	51K 1/6W CARBON	
	R634	QRD167J-683	68K 1/6W CARBON	
	R635	QRD167J-683	68K 1/6W CARBON	
	R636	QRD167J-684	680K 1/6W CARBON	
	R637	QRD161J-221	220 1/6W CARBON	
	R638	QRD167J-184	180K 1/6W CARBON	
	R701	QRD167J-470	47 1/6W CARBON	
	R702	QRD161J-221	220 1/6W CARBON	
	R703	QRD167J-101	100 1/6W CARBON	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10217-102		
		E306805-010	SPACER	
		E306951-221SS	FL DISPLAY HOLDER	
		E406604-001	EARTH BRACKET	
		E70859-001	EARTH PLATE	
		E75621-001	BRACKET	
	J201	EMV7123-025R	CONNECTOR 25pin	
	J202	EMV7123-025	CONNECTOR 25pin	
	J203	EMV7120-012	CONNECTOR 12pin	
	J204	EMV5120-012	PLUG ASSY 12pin	
	J301	EMN00TV-409A	4P PIN JACK	
	J302	QMS6302-136	HEADPHONE JACK	
	J451	GP1F32T	OPTICAL JACK	
	J601	EMV7123-013	CONNECTOR 13pin	
	J701	QMS3501-020	MINI JACK	
	L301	EQL4004-1R0	INDUCTOR	
	L303	EQL4004-1R0	INDUCTOR	
	L304	EQL4004-1R0	INDUCTOR	
	P101	VMC0107-010	WIRE CONNECTOR 10pin	
	P351	VMC0107-008	CONNECT TERMINAL 8pin	

⚠ : SAFETY PARTS

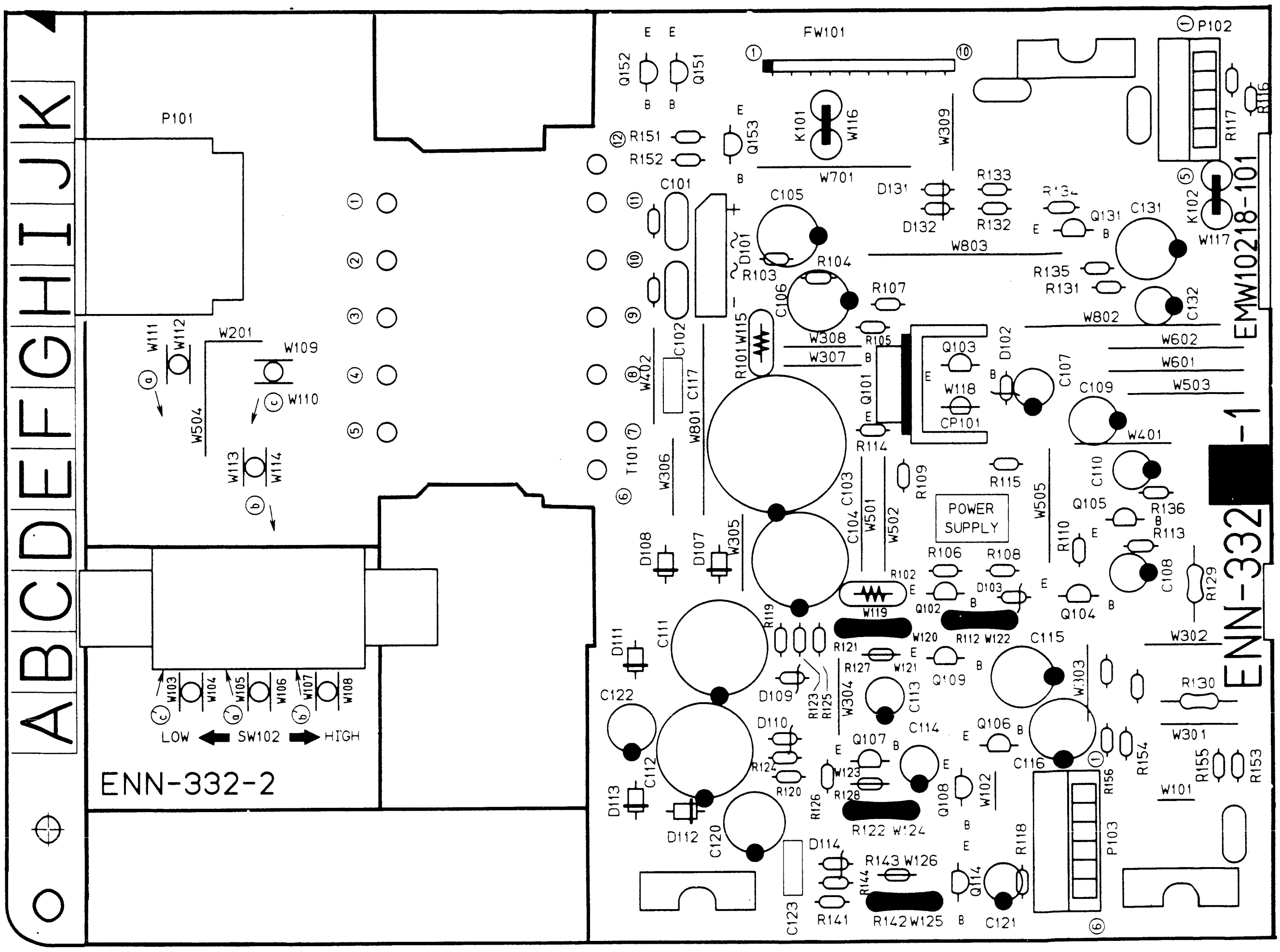
Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	P501	EMV5109-010A	PLUG ASSY 10pin	
	X201	ECX0060-000EM	RESONATOR	
	X301	ECX0169-344KL	RESONATOR	
	FL201	ELU0001-136	FL TUBE	
	FW102	EWR35B-16LST	FLAT WIRE 5pin	
	FW103	EWR36B-13LST	FLAT WIRE 6pin	
	FW351	EWR38B-45LST	FLAT WIRE 8pin	
	MV351	QVJB94B-E24E	VARIABLE RESISTOR	
	SW101	QST4101-E20	PUSH SWITCH POWER ON/OFF	
	SW201	ESP0001-018	TACT SWITCH OPEN/CLOSE	
	SW202	ESP0001-018	TACT SWITCH REPEAT	
	SW203	ESP0001-018	TACT SWITCH PROGRAM	
	SW204	ESP0001-018	TACT SWITCH CANCEL	
	SW205	ESP0001-018	TACT SWITCH + 10	
	SW206	ESP0001-018	TACT SWITCH EDIT	
	SW207	ESP0001-018	TACT SWITCH A/B	
	SW208	ESP0001-018	TACT SWITCH DDRP	
	SW209	ESP0001-018	TACT SWITCH RANDOM	
	SW210	ESP0001-018	TACT SWITCH PLAY/PAUSE	
	SW211	ESP0001-018	TACT SWITCH 1	
	SW212	ESP0001-018	TACT SWITCH 2	
	SW213	ESP0001-018	TACT SWITCH 3	
	SW214	ESP0001-018	TACT SWITCH 4	
	SW215	ESP0001-018	TACT SWITCH 5	
	SW216	ESP0001-018	TACT SWITCH 6	
	SW217	ESP0001-018	TACT SWITCH 7	
	SW218	ESP0001-018	TACT SWITCH 8	
	SW219	ESP0001-018	TACT SWITCH 9	
	SW220	ESP0001-018	TACT SWITCH 10	
	SW221	ESP0001-018	TACT SWITCH 11	
	SW222	ESP0001-018	TACT SWITCH 12	
	SW223	ESP0001-018	TACT SWITCH 13	
	SW224	ESP0001-018	TACT SWITCH 14	
	SW225	ESP0001-018	TACT SWITCH 15	
	SW226	ESP0001-018	TACT SWITCH 16	
	SW227	ESP0001-018	TACT SWITCH 17	
	SW228	ESP0001-018	TACT SWITCH 18	
	SW229	ESP0001-018	TACT SWITCH 19	
	SW230	ESP0001-018	TACT SWITCH 20	
	SW231	ESP0001-018	TACT SWITCH BACKWARD SCAN	
	SW232	ESP0001-018	TACT SWITCH FOWARD SCAN	
	SW233	ESP0001-018	TACT SWITCH BACKWARD SKIP	
	SW234	ESP0001-018	TACT SWITCH FOWARD SKIP	
	SW235	ESP0001-018	TACT SWITCH STOP	

⚠ : SAFETY PARTS

■ENN-332 ☐ Power Supply PC Board Ass'y

Note : ENN-332 ☐ varies according to the areas employed. See note (1) when placing an order.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R141
R142
W125
C121
R116
R117
EMW10218-101
ENN-332-1

Note (1)

PC Board Ass'y	Designated Areas
ENN-332 B BS	the U.K
ENN-332 E	Continental Europe, Scandinavia
ENN-332 A	Australia
ENN-332 G	Germany

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q101	2SB1187(E,F)	SILICON ROHM	
	Q102	2SC2060(Q,R)	SILICON ROHM	
	Q103	2SD1302(S,T)	SILICON MATSUSHITA	
	Q104	2SA933S(R,S)	SILICON ROHM	
	Q105	2SD1302(S,T)	SILICON MATSUSHITA	
	Q106	DTA114YS	SILICON ROHM	
	Q107	DTC114YS	SILICON ROHM	
	Q108	2SA934(Q,R)	SILICON ROHM	
	Q109	2SC2060(Q,R)	SILICON ROHM	
	Q114	2SA733A(P,Q)	SILICON NEC	
	Q131	2SA933S(R,S)	SILICON ROHM	
	Q151	2SD2144S(VW)	SILICON ROHM	
	Q152	2SD2144S(VW)	SILICON ROHM	
	Q153	DTA114YS	SILICON ROHM	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
⚠	D101	S1VB20F	SILICON SINDENGEN	
	D102	MTZ5.6JA	ZENER ROHM	
	D103	MTZ5.6JA	ZENER ROHM	
⚠	D107	ERA15-02L19	SILICON KYOUDOU	
⚠	D108	ERA15-02L19	SILICON KYOUDOU	
	D109	MTZ13JA	ZENER ROHM	
	D110	MTZ13JA	ZENER ROHM	
⚠	D111	ERA15-02L19	SILICON KYOUDOU	
⚠	D112	ERA15-02L19	SILICON KYOUDOU	
⚠	D113	ERA15-02L19	SILICON KYOUDOU	
	D114	MTZ24JC	ZENER ROHM	
	D131	1SS133	SILICON ROHM	
	D132	1SS133	SILICON ROHM	

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C101	EFH001J-104	M.MYLAR	A
	C101	EFH001J-104	M.MYLAR	BBS
	C101	EFH001J-104	M.MYLAR	E
	C101	QFV81HJ-104	0.1MF 50V T.FILM	G
	C102	EFH001J-104	M.MYLAR	A
	C102	EFH001J-104	M.MYLAR	BBS
	C102	EFH001J-104	M.MYLAR	E
	C102	QFV81HJ-104	0.1MF 50V T.FILM	G
	C103	QETB1CM-338	3300MF 16V ELECTRO	
	C104	QETB1CM-228	2200MF 16V ELECTRO	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C107	QETB1HM-225	2.2MF 50V ELECTRO	
	C108	QETB1HM-225	2.2MF 50V ELECTRO	
	C109	QETB0JM-227	220MF 6.3V ELECTRO	
	C110	QETB1AM-476	47MF 10V ELECTRO	
	C111	EET2502-108N	1000MF ELECTRO	
	C112	EET2502-108N	1000MF ELECTRO	
	C113	QETB1CM-476	47MF 16V ELECTRO	
	C114	QETB1CM-476	47MF 16V ELECTRO	
	C115	QETB1CM-227	220MF 16V ELECTRO	
	C116	QETB1CM-227	220MF 16V ELECTRO	
	C117	EFH001J-104	M.MYLAR	
	C120	QETB1HM-107	100MF 50V ELECTRO	
	C121	QETB1HM-475	4.7MF 50V ELECTRO	
	C122	QETB1EM-107	100MF 25V ELECTRO	
	C123	EFH001J-104	M.MYLAR	
	C131	QETB1CM-227	220MF 16V ELECTRO	
	C132	QETB1CM-226	22MF 16V ELECTRO	

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R101	PTH8L07BB2R2N1B	POSITIVE T	HE
	R102	PTH8L07BB2R2N1B	POSITIVE T	HE
	R105	QRD167J-222	2.2K 1/6W CARBON	
	R106	QRD167J-222	2.2K 1/6W CARBON	
	R107	QRD161J-221	220 1/6W CARBON	
	R108	QRD161J-221	220 1/6W CARBON	
	R109	QRD161J-221	220 1/6W CARBON	
	R110	QRD161J-221	220 1/6W CARBON	
⚠	R112	QRZ0077-100	10 1/4W FUSIBLE	
	R113	QRD167J-331	330 1/6W CARBON	
	R114	QRD167J-202	2K 1/6W CARBON	
	R115	QRD167J-332	3.3K 1/6W CARBON	
	R116	QRD167J-911	910 1/6W CARBON	
	R117	QRD167J-911	910 1/6W CARBON	
	R118	QRD167J-103	10K 1/6W CARBON	
	R119	QRD167J-512	5.1K 1/6W CARBON	
	R120	QRD167J-512	5.1K 1/6W CARBON	
⚠	R121	QRZ0077-100	10 1/4W FUSIBLE	
⚠	R122	QRZ0077-100	10 1/4W FUSIBLE	
	R123	QRD167J-512	5.1K 1/6W CARBON	
	R124	QRD167J-512	5.1K 1/6W CARBON	
	R125	QRD167J-512	5.1K 1/6W CARBON	
	R126	QRD167J-512	5.1K 1/6W CARBON	
	R127	QRD167J-121	120 1/6W CARBON	
	R128	QRD167J-121	120 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R129	ERD141J-472S	4.7K 1/4W CARBON	
	R130	ERD141J-472S	4.7K 1/4W CARBON	
	R131	QRD161J-221	220 1/6W CARBON	
	R132	QRD161J-221	220 1/6W CARBON	
	R133	QRD161J-221	220 1/6W CARBON	
	R134	QRD167J-822	8.2K 1/6W CARBON	
	R135	QRD167J-683	68K 1/6W CARBON	
	R136	QRD167J-103	10K 1/6W CARBON	
	R141	QRD167J-472	4.7K 1/6W CARBON	
⚠	R142	QRZ0077-560	56 1/4W FUSIBLE	
	R143	QRD167J-121	120 1/6W CARBON	
	R144	QRD167J-472	4.7K 1/6W CARBON	
	R151	QRD167J-103	10K 1/6W CARBON	
	R152	QRD167J-103	10K 1/6W CARBON	
	R153	QRD167J-271	270 1/6W CARBON	
	R154	QRD167J-271	270 1/6W CARBON	
	R155	QRD167J-271	270 1/6W CARBON	
	R156	QRD167J-271	270 1/6W CARBON	

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		E70306-001	HEAT SINK	
		E70859-001	EARTH PLATE	
		SBSE3008Z	SCREW	
		EMW10218-101	PRINTED BOARD	A
		EMW10218-101BS	PRINTED BOARD	BBS
		EMW10218-101	PRINTED BOARD	E
		EMW10218-101	PRINTED BOARD	G
	P101	QMCB001-E02H	AC SOCKET	A
	P101	QMCB001-E02HBS	AC SOCKET	BBS
	P101	QMCB001-E02H	AC SOCKET	E
	P101	QMCB001-E02H	AC SOCKET	G
	P102	VMC0107-005	CONNECT TERMINAL 5pin	
	P103	VMC0107-006	CONNECT TERMINAL 6pin	
⚠	CP101	ICP-N15	I.C. PROTECTOR	
	FW101	EWR3AB-25LST	FLAT WIRE 10pin	

⚠ : SAFETY PARTS

Accessories List

⚠	Part Number	Part Name	Q'ty	Description	Areas
	E30580-1873B	Instruction Book	1		EF,G
	E30580-1874B	Instruction Book	1		EN
	E30580-1872B	Instruction Book	1		A
	E30580-1872ABS	Instruction Bok	1		BS
	BT-20134	Warranty Card	1		G
	BT-20122-1	LTD Sticker	1		A
	BT-20122	Audio Warranty Card	1		A
	EWP302-011SS	Signal Cord	1		
	EWP805-001SS	1P Plug Cord	1		
	E300196-010B	Envelope	1		
	QMP39G0-183E	Power Cord	1		EN,EF,G
	QMP25C0-183	Power Cord	1		A
	QMP5510-183BS	Power Cord	1		BS
	UM-3(DJ)-2PSA	Battery	1		
	E04056	Siemens Plug	1		U
	E300196-063B	Envelope	1		
	E35497-022	Caution Sheet	1		
	RM-SX551U	Remote Control Unit	1		

⚠: Safety Parts

The Marks Designated Areas

G .... Germany

EF .... Continental Europe

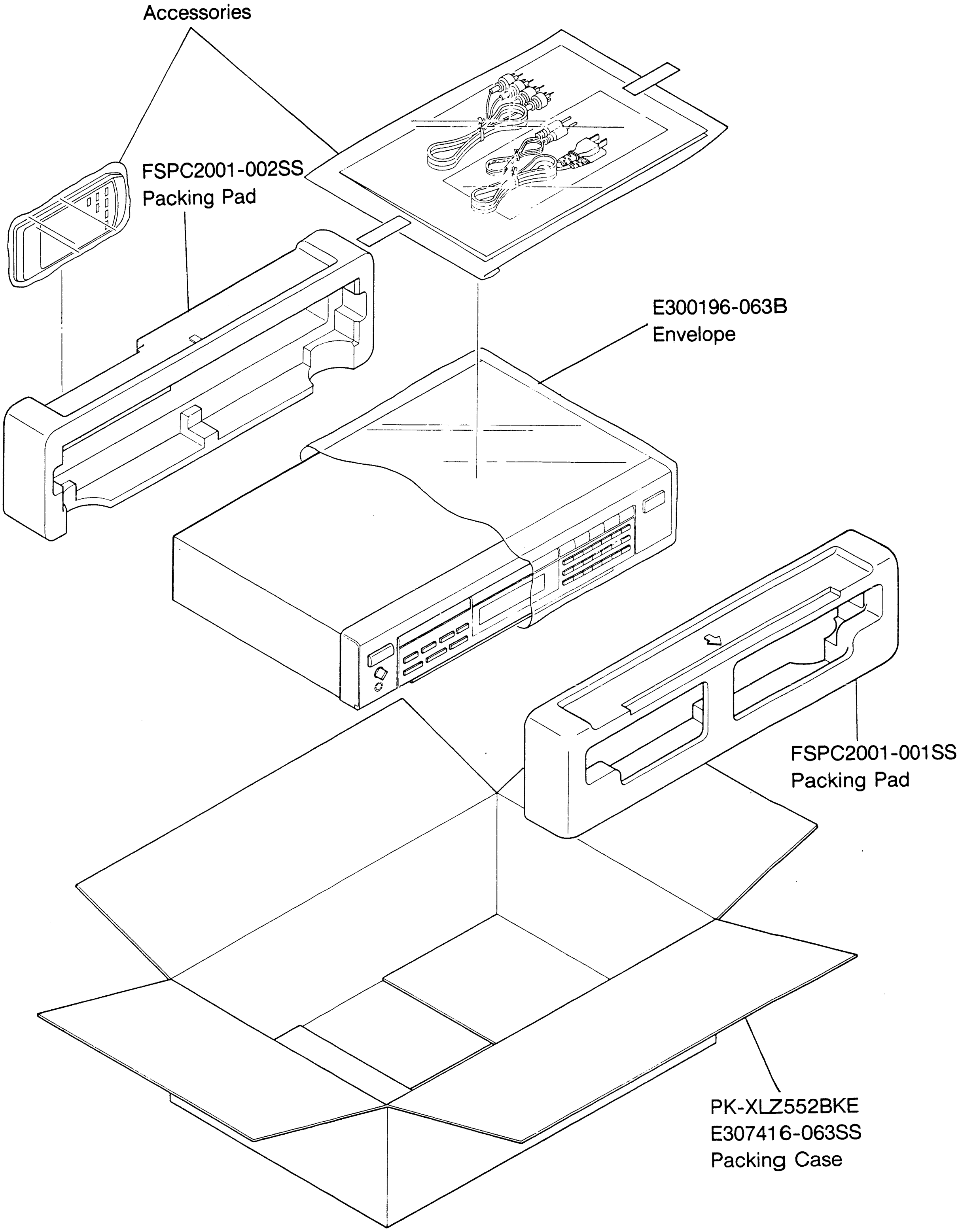
EN .... Scandinavia

A .... Australia

BS .... the U.K

No mark indicates all areas.

Packing Materials and Part Numbers


Accessories
FSPC2001-002SS
Packing Pad
E300196-063B
Envelope
FSPC2001-001SS
Packing Pad
PK-XLZ552BKE
E307416-063SS
Packing Case

The Marks Designated Areas	
G·········· Germany	A·········· Australia
EF·········· Continental Europe	BS ·········· the U.K
EN ·········· Scandinavia	No mark indicates all areas.

—MEMO—

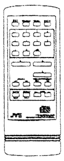
JVC

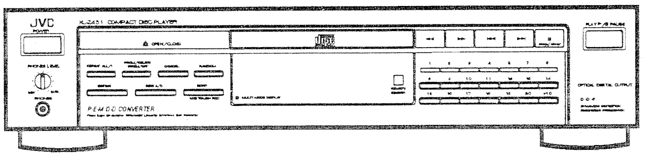
SERVICE MANUAL

COMPACT DISC PLAYER

XL-Z451TN
XL-Z452BK

COMPACT
disc
DIGITAL AUDIO




JVC
POWER
XL-Z451 COMPACT DISC PLAYER
OPEN/CLOSE
PHONES LEVEL
PHONES
P.E.M. D-D CONVERTER
PLAY/PAUSE
OPTICAL DIGITAL OUTPUT

COMPU LINK
Remote
Control Component

Note : XL-Z451TN and XL-Z452BK are completely same in their structure, except for their outlook colors.

Contents

Safety Precaution 1-2
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Description of Major ICs 1-20
Internal Block Diagram of Other ICs 1-27
Internal Connection for the FL Display Tube 1-28
Application Points For Grease 1-29
Disassembly Procedures 1-30
Flow of Functional Operation Until TOC is Read 1-32
Maintenance of Laser Pickup 1-33
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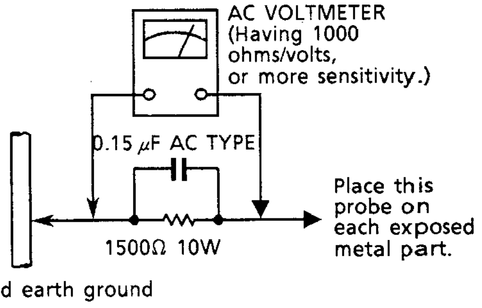
Schematic Diagrams .... Insertion
Printed Circuit Board .... Insertion
Connection Diagram .... Insertion
Parts List .... Insertion

No. 20324
Feb. 1992

Safety Precautions

1. The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute repalcement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, contorl shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet, particularily any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.).
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10 W resistor paralleled by a 0.15 µF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

Important for Laser Products

1. CLASS 1 LASER PRODUCT
2. DANGER : Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. CAUTION : There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.
4. CAUTION : The compact disc player uses invisible laser radiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.
5. CAUTION : If safety switches malfunction. the laser is able to function.
6. CAUTION : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
7. CAUTION : The compact disc player provides a laser diode of wavelength 780-790nm and optical output power typical 3mW at the laser diode.

VARNING : Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

ADVARSEL : Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

ADVARSEL : Usynlig laserstråling ved åpning, når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

REPRODUCTION AND POSITION OF LABELS

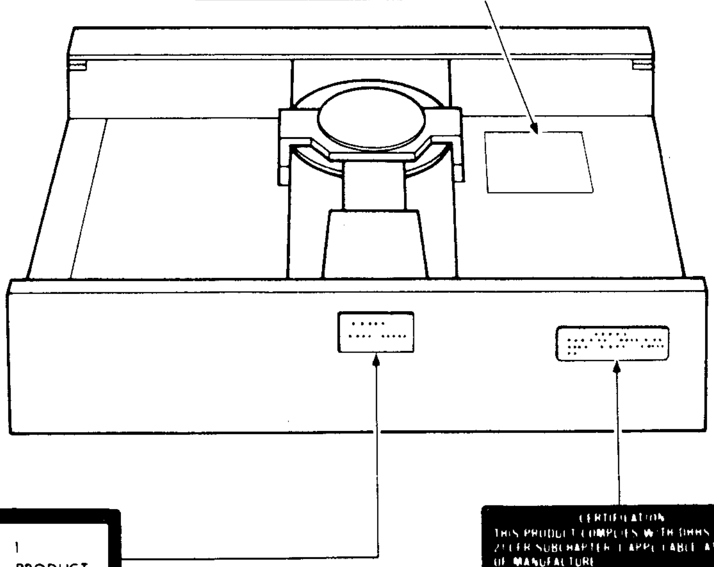
WARNING LABEL
(Except for the U.S.A.)

DANGER: Invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e)

VARNING: Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen. (s)

ADVARSEL: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling. (d)

VARO: Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f)



CLASS 1
LASER PRODUCT

CLASSIFICATION LABEL
(Except for the U.S.A. and Canada)

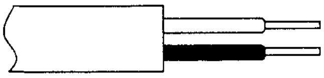
CERTIFICATION
THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE

CERTIFICATION PRINT BY DHHS
(Only for the U.S.A.)

IMPORTANT (In the United Kingdom) Mains Supply (AC 240V ∿ , 50 Hz only)

IMPORTANT

Do not make any connection to the Larger Terminal coded E or Green. The wires in the mains lead are coloured in accordance with the following code:



Blue to N (Neutral) or Black
Brown to L (Live) or Red

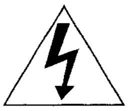
If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.
Brown wire to terminal coded L (Live) or coloured Red.
If in doubt — consult a competent electrician.

THIS UNIT IS PRODUCED TO COMPLY WITH DIRECTIVE 76/889/EEC.

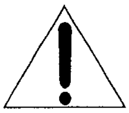
WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK.
DO NOT REMOVE COVER (OR BACK)
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

INFORMATION (FOR U.S.A)

This equipment generates and uses radio frequency energy and if not installed and used properly that is in strict accordance with the manufacturer's instructions may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception which can be determined by turning the equipment off and on the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna
Relocate this equipment with respect to the receiver
Move this equipment away from the receiver.
Plug this equipment into a different outlet so that this equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful.

"How to identify and Resolve-TV interference Problems." This booklet is available from the US Government Printing Office Washington. D.C. 20402, Stock No. 004-000-00345-4

CAUTION

To reduce the risk of electrical shocks, fire, etc.:
1. Do not remove screws, covers or cabinet.
2. Do not expose this appliance to rain or moisture.

IMPORTANT FOR LASER PRODUCTS

REPRODUCTION OF LABELS

① CLASSIFICATION LABEL, PLACED ON REAR ENCLOSURE
(Except for the U.S.A. and Canada)

CLASS 1
LASER PRODUCT

② WARNING LABEL, PLACED INSIDE THE UNIT
(Except for the U.S.A.)

DANGER: Invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e)

VARNING: Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen. (s)

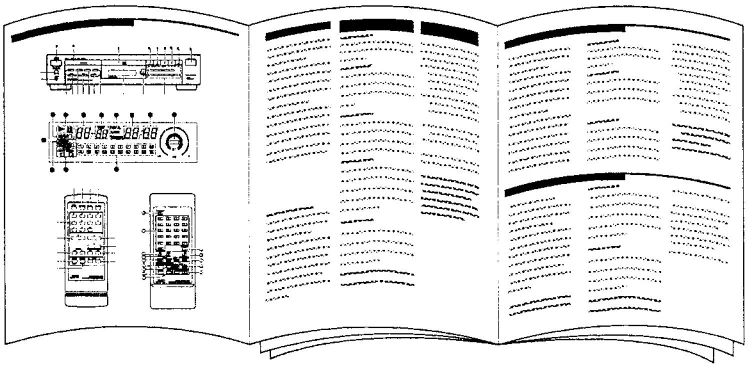
ADVARSEL: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling (d)

VARO: Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f)

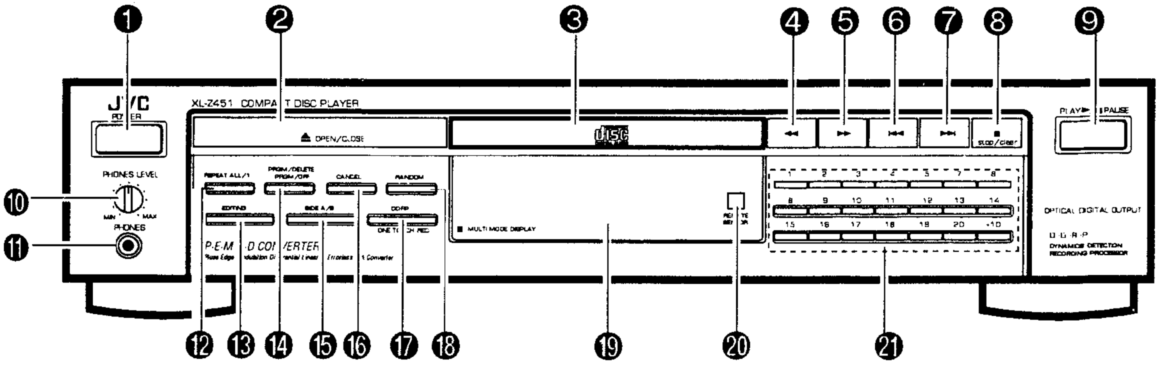
---

1. CLASS 1 LASER PRODUCT
2. **DANGER:** Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. **CAUTION:** Do not open the top cover. There are no user serviceable parts inside the unit; leave all servicing to qualified service personnel.

On the back fold-out page of this page are illustrations of the front panel, the display and the remote control unit.
Please see reverse side of this fold-out page when you read the instructions corresponding by number.



FRONT PANEL


1
2
3
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11
12
13
14
15
16
17
18
19
20
21
JVC
POWER
PHONES LEVEL
MIN
MAX
PHONES
XL-Z451 COMPACT DISC PLAYER
OPEN/CLOSE
REPEAT ALL/1
PRGM/DELETE PRGM/OFF
CANCEL
RANDOM
EDITING
SIDE A/B
DDRP
ONE TOUCH REC
MULTI MODE DISPLAY
REMOTE SENSOR
STOP/CLEAR
PLAY ▶ / II PAUSE
OPTICAL DIGITAL OUTPUT
D.D.R.P
DYNAMIC DETECTION RECORDING PROCESSOR
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 +10

FIG. 1

DISPLAY

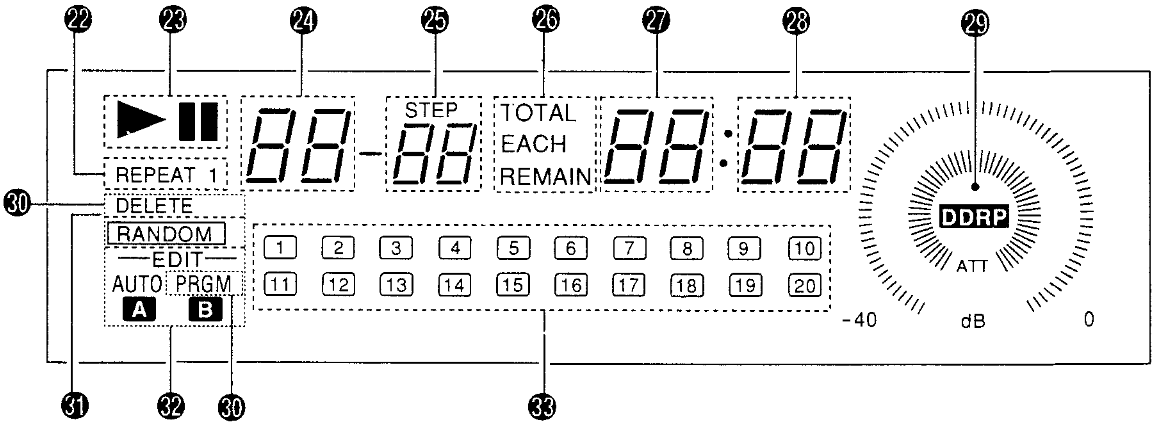
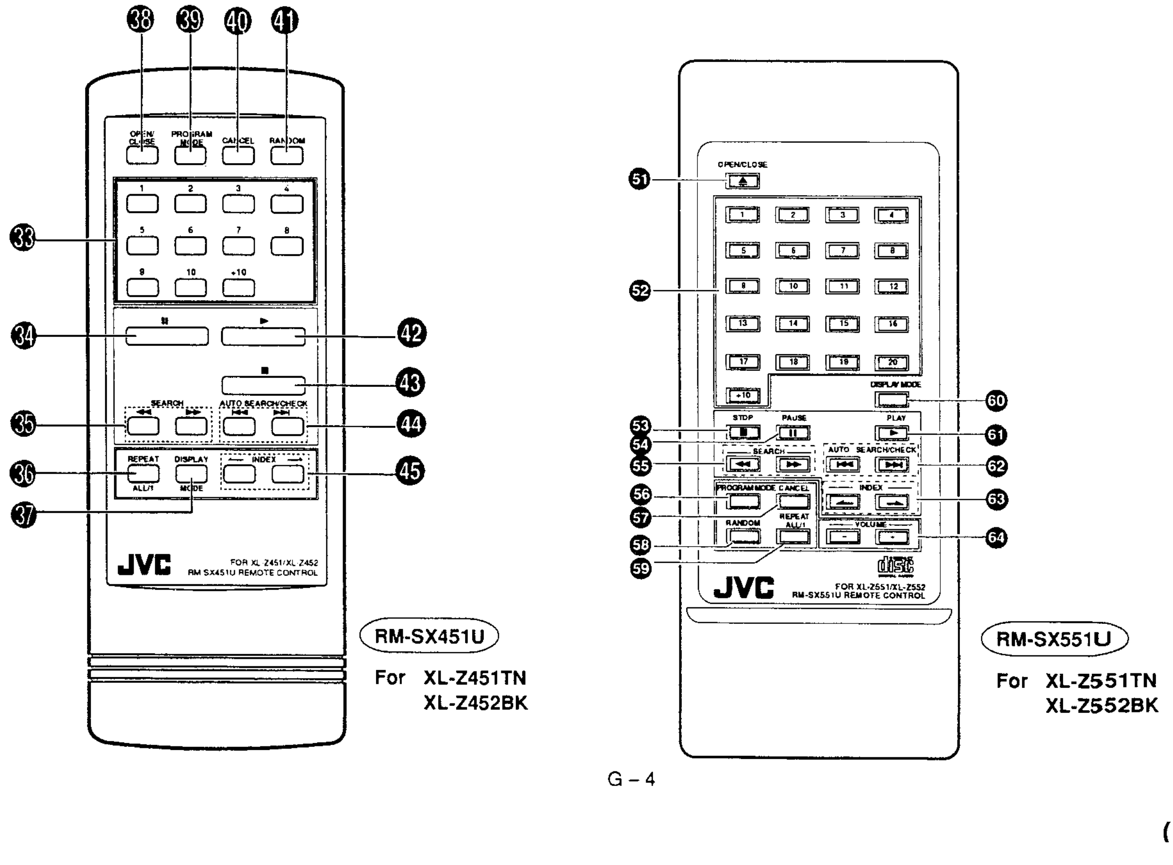

22
23
24
25
26
27
28
29
30
31
32
30
33
REPEAT 1
DELETE
RANDOM
EDIT
AUTO
PRGM
A
B
STEP
TOTAL
EACH
REMAIN
DDRP
ATT
-40
dB
0
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20

FIG. 2

REMOTE CONTROL UNIT


38
39
40
41
OPEN/CLOSE
PROGRAM MODE
CANCEL
RANDOM
33
34
35
36
37
42
43
44
45
SEARCH
AUTO SEARCH/CHECK
REPEAT ALL/1
DISPLAY MODE
INDEX
JVC
FOR XL-Z451/XL-Z452
RM-SX451U REMOTE CONTROL
RM-SX451U
For XL-Z451TN
XL-Z452BK
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58
59
60
61
62
63
64
OPEN/CLOSE
DISPLAY MODE
STOP
PAUSE
PLAY
SEARCH
AUTO SEARCH/CHECK
PROGRAM MODE
CANCEL
INDEX
RANDOM
REPEAT ALL/1
VOLUME
FOR XL-Z551/XL-Z552
RM-SX551U REMOTE CONTROL
RM-SX551U
For XL-Z551TN
XL-Z552BK

FIG. 3

CONTENTS

Precaution in use 1
How to handle a compact disc 1
COMPU LINK Control system 2
DDRP 2
Before use 3
How to install the batteries 3
Connection diagram 4
Description and functions 6
Display 7
Remote control unit 8
How to operate 9
Troubleshooting 11
Specifications 12

Thank you for purchasing this JVC product. Before you begin operating this unit, please read the instructions carefully to be sure you get the best possible performance.
If you have any question, consult your JVC dealer.

COMPU LINK
Remote
Control System

COMPU LINK (remote) Control System is a convenient system using COMPU LINK-1/ SYNCHRO terminals on the rear panel. For further details, refer to page 2.

D • D • R • P

DYNAMICS DETECTION RECORDING PROCESSOR

This product can be combined with a DDRP (Dynamic Detection Recording Processor) system (compact disc player + cassette deck, etc.) to enable setting the optimum recording level automatically.
For further details, refer to page 2.

Notes:

- **XL-V451TN/XL-V452BK/XL-V551TN/XL-V552BK has almost the same function. The main operational differences of XL-Z451TN/XL-Z452BK / XL-Z551TN/XL-Z552BK are as follow.**

PRECAUTION IN USE

Installation

- Select a location which is level, dry and **Neither too cold nor too hot [between 5°C (41°F) and 35°C(95°F)].**
- Avoid a dusty location or a location subject to vibrations.

Power

- When unplugging from the wall outlet, always pull on the plug, not on the power cord.

Malfunctions, etc.

- Do not insert any metallic object into the player.
- The discs to be played on this player are limited to those bearing the mark below

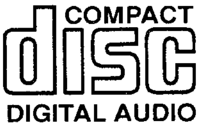


Fig 4

- Placing anything other than a compact disc on the platter may cause the player to malfunction.
- If something goes wrong, turn the power off immediately. If the same phenomenon occurs when the power is turned on again, turn the power off and consult your JVC dealer.

Volume setting

As a compact disc causes almost no noise, it is difficult to set the volume level by listening to noise as in the case of an ordinary analog turntable or a tape deck. If the volume level is raised too much because the beginning of the selection is quiet, the speakers may be damaged by a sudden increase in the sound level.

Condensation

As the compact disc player uses optical parts, moving it from a cold to warm place or using it in a room subject to excessive humidity or in a room where a fire has just been lit may cause condensation on the optical parts. This phenomenon may prevent the light from being correctly transmitted, and may cause noise or malfunction.
If dew condenses and the player does not function correctly, leave it on for several hours with the power turned on.
If the player does not function even after such period, consult your dealer.

Note:

- **When this unit is placed near a turner or a receiver, noise may occur. If this happens, move this unit as far from the turner or the receiver as possible, or briefly turn off the power of the unit.**

HOW TO HANDLE A COMPACT DISC

Since compact discs are made of plastic, they can be easily damaged; if the disc gets dirty, dusty, damaged or warped, the sound will not be picked up correctly, and such discs may cause the player to malfunction. When handling compact disc,use the following precautions.

- Do not touch the surface of the disc (reflective silver i.e. the side without the label) When handling the discs.
- **Storage**
  Make sure to keep discs in their cases. If discs are piled on top of the one another without cases, they can be damaged. Do not put discs in a location exposed to direct sunlight or in a place with high temperature and humidity.
  Avoid leaving discs in your car.
- **Maintenance of discs (Fig. 5)**
  When fingerprints and dirt adhere to a disc, wipe the disc off with a soft, dry cloth from the inside towards the outside. If it is dificult to clean, wipe the disc with a cloth moistened with water.
- Do not use record cleaners, benzine, alcohol or antistatic agent.
- Do not damage the label side or stick paper or adhesive to the surface.
- In the case of an 8 cm (3") single CD, place it in the disc hold, for an 8 cm (3") disc, within the platter.

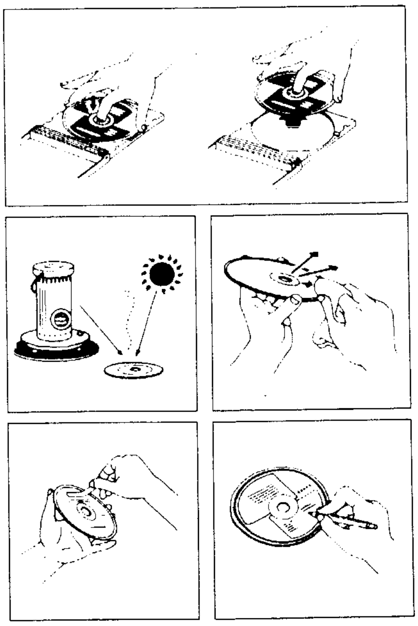


Fig. 5

Model Name	Color	Remote Control (Refer to P.8)		OUTPUT Terminals (Refer to P4, P5 & P6)
XL-Z451TN	Titanium	• 10 Keys Control		Fixed
XL-Z452BK	Black	• 10 Keys Control		Fixed
XL-Z551TN	Titanium	• 20 Keys Control	• PHONE LEVEL Control	Fixed and Variable
XL-Z552BK	Black	• 20 Keys Control	• PHONE LEVEL Control	Fixed and Variable

COMPU LINK CONTROL SYSTEM

This is a convenient system was originated and developed by JVC. the following is a brief explanation of its major points.

Automatic Source Selection

When the provided remote cable are used for connecting this unit to other components which have COMPU LINK -1/SYNCHRO terminals, the switch-over of all system components is possible with simple one-touch of the source selector button of the JVC amplifier or receiver. By doing this, the corresponding component will start playing automatically. The source select button of the remote control unit or the select button of the desired component can also be use for this purpose.

When the components have been switch over, the previously used component will stop playing within five seconds.

Synchronized Recording

If a cassette deck with COMPU LINK-1/ SYNCHRO terminals is connected with the remote cable supplied, synchro.recording becomes posibble.

Synchronized recording refers to the process in which the cassette deck starts recording in the synchronism with the CD player. Perform the synchronized recording as follows.

1. Set the cassette deck to the REC/PAUSE mode in accordance with the procedures in the instructions.
2. If you want programmed recordings, program the desired selections in any order you wish to hear them.
3. Press the [PLAY(► / ‖ PAUSE)] button of the CD player. By doing so, the cassette deck is placed in the record mode and synchronized with the CD player for recording. Synchronized recording thus can be made possible.

Notes:

- **Synchronized recording stops automatically when the CD player stops playing.**
- **To cancel synchronized recording, press the [STOP/CLEAR (■)] button of the CD player or cassette deck.**

CAUTION:

- **When the REC/PAUSE mode is set by pressing [PAUSE (‖)] button after pressing the [REC (○)] and [PLAY (►)] buttons simultaneously, synchronized recording is not possible. For details, refer to the instructions of the cassette deck.**
- **Abnormal operation will result if the power supply of the component(s) is interrupted. If this happens, you must start all over again.**
- **Ensure that the COMPU LINK-1/SYNCHRO terminals of the individual components are connected with the provided remote cables. Also be sure to fully read the instructions for each component.**

DDRP (Dynamic Detection Recording Processor)

The Dynamics Detection Recording Processor (DDRP) detects the peak level of the music being performed and outputs the optimum recording level.

When the (DDRP) button is pressed, the DDRP indicator starts to flash, the letters "ddrp" run along the display and the output signal level is reset to the maximum value. Each time a new peak level is detected during peak search mode, the PHONES OUTPUT LEVEL setting is reduced and the optimum level is set. The time taken for peak search varies with the total performance time of the music being scanned, but is around two minutes for a 40 minute performance time.

DDRP Recording

The combination of the DDRP function and synchro recording makes recording on tape cassette very easy. There are two recording methods - according to which type of cassette deck is being used.

1. In combination with a DDRP compatible JVC cassette deck :
   Peak search is initiated by pressing the [DDRP] button. As soon as the peak search is terminated, recording starts. The cassette deck should be operated in accordance with the instructions supplied with it.
2. In combination with any JVC cassette deck not DDRP-compatible :
   Where connection is made to a cassette deck not DDRP-compatible, via the synchro terminals, pressing the [DDRP] button will start the recording process.
   In this case, the cassette deck input level will not be automatically set.
   Where a none DDRP-compatible cassette deck is used, a preliminary recording should be made in order to ascertain ideal input levels - the input level being then set up in accordance with the instructions for the cassette deck. If the input-level knob is subsequently reset to the same position, this enables recording at the optimum level to be done, without resetting every time.

DDRP Cancel

Press the [OPEN/CLOSE (⏏)] button to cancel DDRP mode.

Note

- The graphic equalizer should not be used during DDRP recording. Using this facility will disturb the optimum recording level setting just found by the DDRP.
- Please do not turn off the power to the CD player while the DDRP mode is active. If this should be turned off by accident then the cassette deck should also be switched off for a few seconds in order to clear the DDRP recording mode from the cassette deck.
- When the cassette deck is connected via the synchro terminals, it is set in recording mode when DDRP is pressed. Take care, therefore, not to erase a tape by mistake.

Supplementary Notes

- *Whenever any addition or cancellation is made to the music tracks programme, the DDRP mode is cancelled.*
- *DDRP recording is automatically stopped when the CD player stops.*

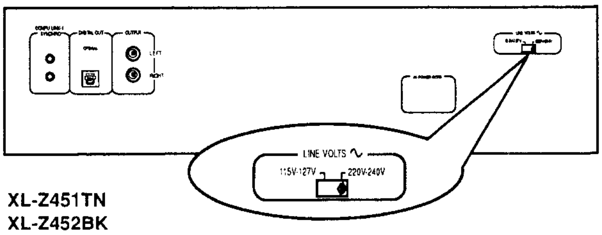
BEFORE USE

Set the voltage selector to your local line voltage. (Fig. 6)
When this equipment is used in an area where the supply voltage is different from the preset voltage, reset the voltage selector to the correct position.
(Not provided on units for U.S.A., Canada, Australia, U.K. and Continental Europe.)

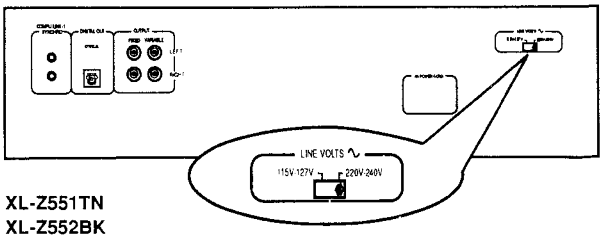
CHECKING YOUR LINE VOLTAGE (Except for U.S.A., Canada, Australia, U.K. and Continental Europe.)
Before inserting the power plug, please check this setting to see that it corresponds with the line voltage in your area. If it doesn't be sure to adjust the voltage selector switch to the proper setting before operating this equipment. the voltage selector switch is located on the rear panel.

CAUTION:

- Before setting the "Voltage selector switch" to proper voltage disconnect the power plug.



XL-Z451TN
XL-Z452BK



XL-Z551TN
XL-Z552BK

Fig. 6

HOW TO INSTALL THE BATTERIES

The service life of the batteries depends on the condition of use; the standard life is about one year.
When the batteries becomes weak, the effective distance of the remote control unit will become shorter. If this happens, replace the batteries with new ones.

- **How to install batteries**

1. Remove the rear cover of the remote control unit by pressing down on it with your thumb and simultaneously pulling it backwards, as shown in Fig. 7.

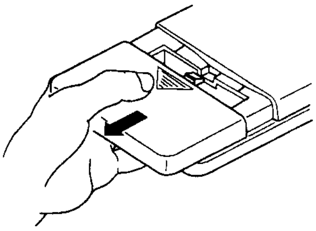
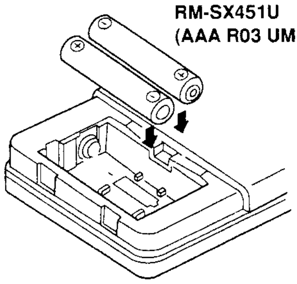


Fig. 7

2. Install batteries as shown in Fig. 8.
   RM-SX451U: (AAA R03 UM-4)
   RM-SX551U: (AA R6P SUM-3)
   Be sure batteries are installed with correct polarity, (+) and (–).

RM-SX451U
(AAA R03 UM-4)



RM-SX551U
(AA R6P SUM-3)

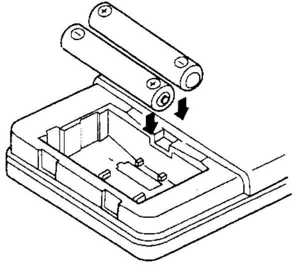


Fig. 8

3. Reinstall the rear cover of the remote control unit. Slide the rear cover back as shown in Fig.9.

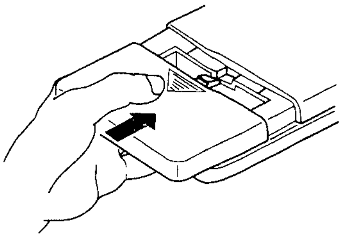


Fig. 9

Important Notes About Batteries

Incorrect use of batteries can cause corrosion or damage. Note the following points to lenghten battery life.

- Install batteries observing the correct polarity, (+) and (–).
- Do not use new and old batteries simultaneously.
- Batteries with similar shapes may have different voltage ratings. Be sure to use the correct batteries.
- Remove batteries from the remote control unit if it will not be used for a long period of time.
- The lower the temperature, the shorter battery life.

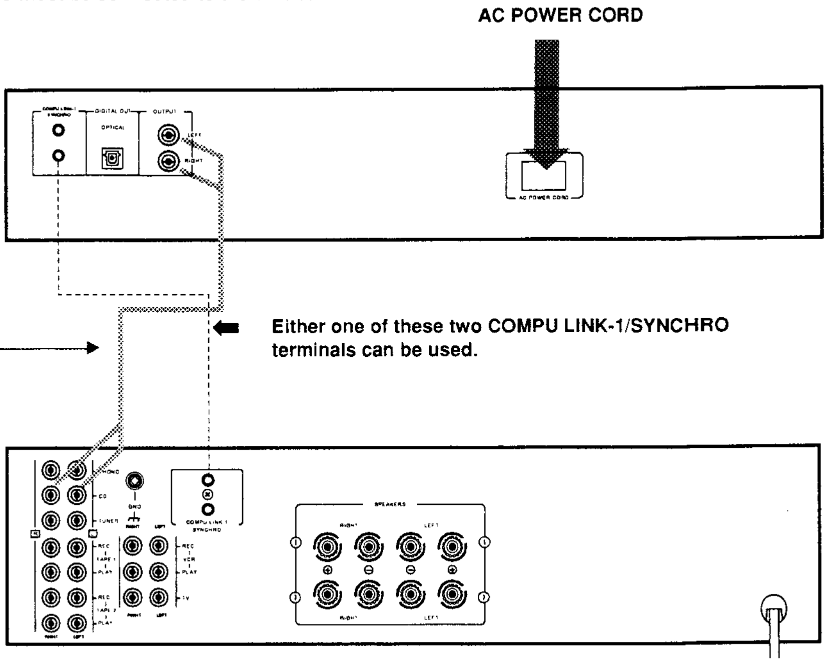
CAUTION:
Do not heat batteries or attempt to dispose of them by burning.

CONNECTION DIAGRAM

XL-Z451TN/XL-Z452BK

- Do not connect the power plug unless all the connection is completed.
- Connect the audio plug firmly.
- The synchronized recording is only possible with JVC products which have the COMPU LINK-1/SYNCHRO terminals. To carry out synchronized recording, connect to the amplifier's CD terminal. For further details, consult your JVC dealer.
- Automatic recording level setting cannot work properly if the DIGITAL out terminal is in use.
- The AC power cord which is supplied by JVC must be connected to the unit before use.

Connecting to the Analog Output Terminals


AC POWER CORD
COMPU LINK-1 SYNCHRO
DIGITAL OUT
OPTICAL
OUTPUT
LEFT
RIGHT
AC POWER CORD
PHONO
CD
TUNER
GND
REC
TAPE 1
PLAY
TAPE 2
VCR
TV
COMPU LINK-1 SYNCHRO
SPEAKERS
RIGHT
LEFT

This cord is designed to connect the CD terminals. Do not connect this cord to the PHONO terminals of the amplifier.

Either one of these two COMPU LINK-1/SYNCHRO terminals can be used.

An example of an amplifier

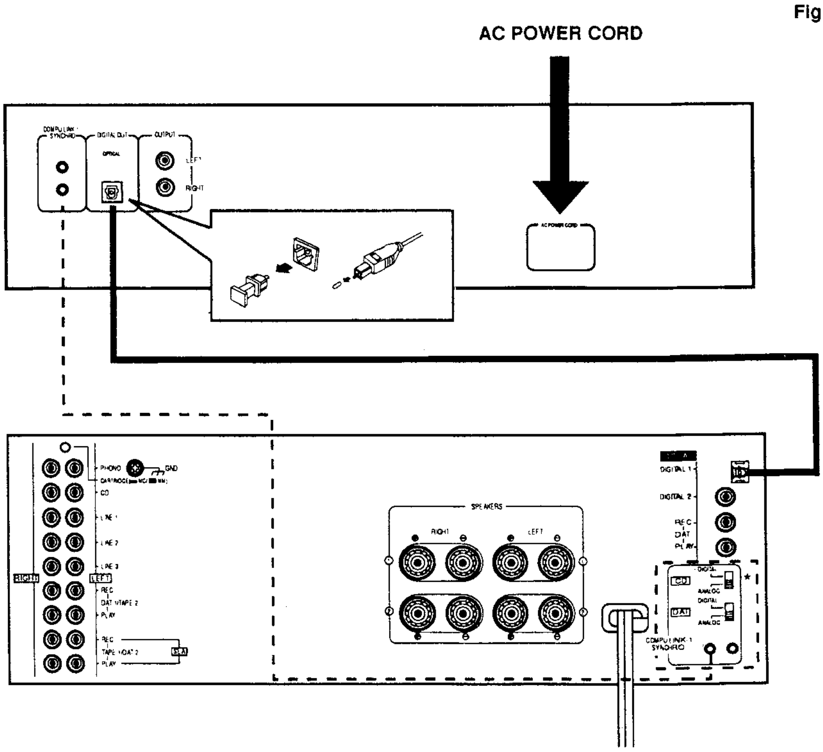
Fig. 10

Connecting to the Digital Output Terminals

Note:

- Never connect the digital output cable except to the digital input terminal.
- When connecting the optical terminal please purchase an optical fiber cable for the connection cord. For details, consult your JVC dealer.
- Remove the terminal cover and the cable's protective cap before connecting the optical fiber cable.

* To perate COMPU LINK controls system and DDRP system correctly, read the Amplifier Manual precisely if you connect to the Amplifier equipped with changeover switch between digital and analog.


AC POWER CORD
COMPU LINK-1 SYNCHRO
DIGITAL OUT
OPTICAL
OUTPUT
LEFT
RIGHT
AC POWER CORD
PHONO
GND
CD
LINE 1
LINE 2
LINE 3
RIGHT
LEFT
REC
DAT/TAPE 2
PLAY
REC
TAPE/DAT 2
PLAY
SPEAKERS
RIGHT
LEFT
DIGITAL 1
DIGITAL 2
REC
DAT
PLAY
CD
DAT
DIGITAL
ANALOG
COMPU LINK-1 SYNCHRO

An example of an amplifier

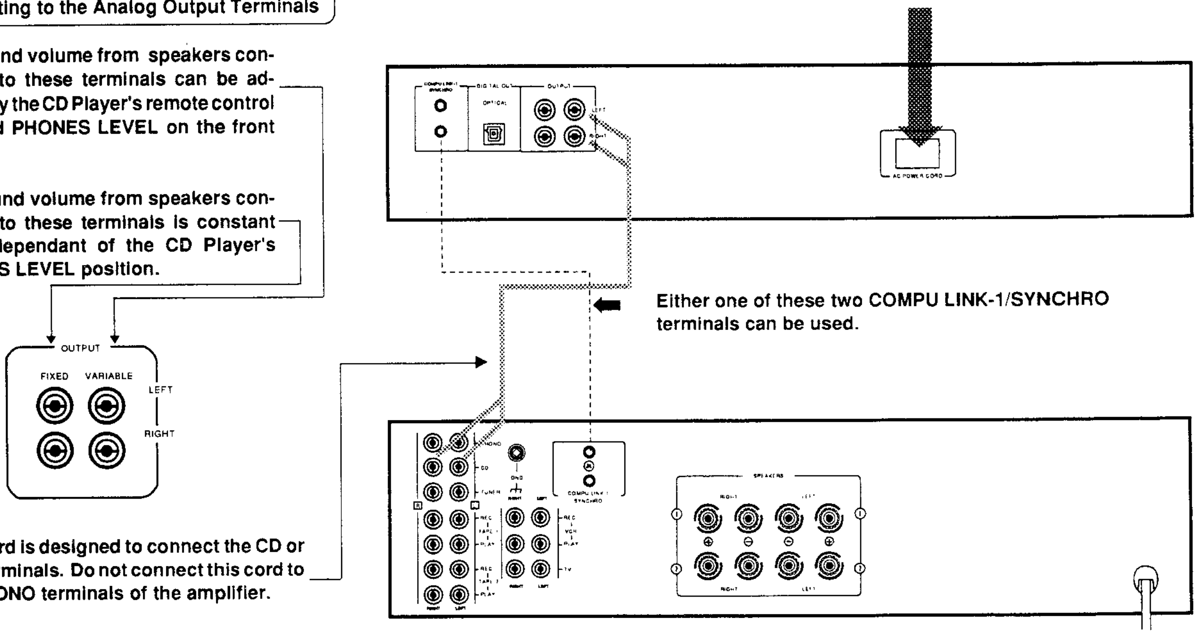
Fig. 11

CONNECTION DIAGRAM

XL-Z551TN/XL-Z552BK

- Do not connect the power plug unless all the connection is completed.
- Connect the audio plug firmly.
- The synchronized recording is only possible with JVC products which have the COMPU LINK-1/SYNCHRO terminals. To carry out synchronized recording, connect to the amplifier's CD terminal. For further details, consult your JVC dealer.
- Automatic recording level setting cannot work properly if the DIGITAL out terminal is in use.
- The AC power cord which is supplied by JVC must be connected to the unit before use.

Connecting to the Analog Output Terminals


OUTPUT
FIXED
VARIABLE
LEFT
RIGHT
SPEAKERS
PHONO
CD
TUNER
COMPU LINK-1 SYNCHRO

AC POWER CORD

The sound volume from speakers connected to these terminals can be adjusted by the CD Player's remote control unit and PHONES LEVEL on the front panel.

The sound volume from speakers connected to these terminals is constant and independant of the CD Player's PHONES LEVEL position.

Either one of these two COMPU LINK-1/SYNCHRO terminals can be used.

This cord is designed to connect the CD or AUX terminals. Do not connect this cord to the PHONO terminals of the amplifier.

An example of an amplifier

Fig. 10

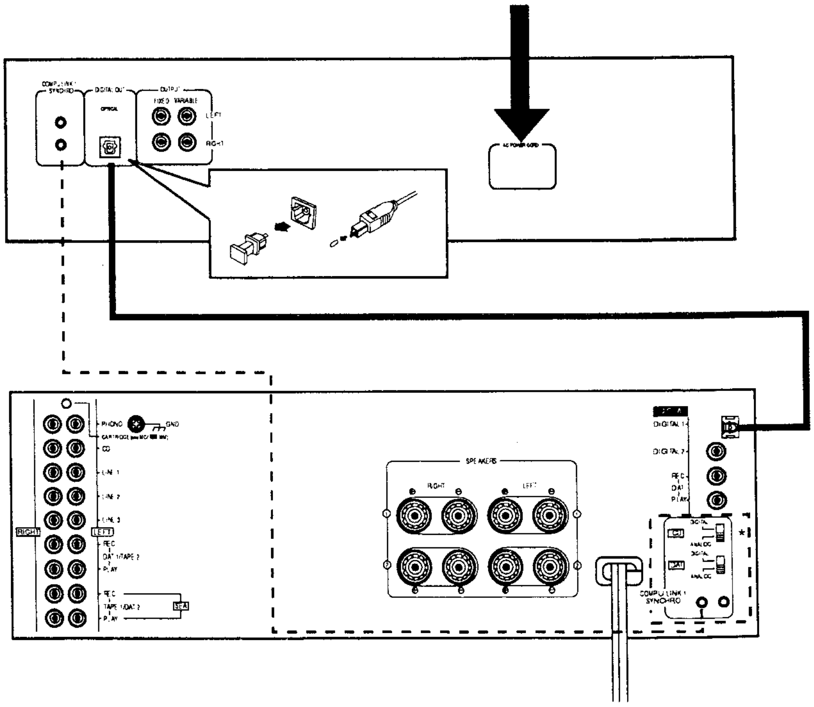
Connecting to the Digital Output Terminals

Note:

- Never connect the digital output cable except to the digital input terminal.
- When connecting the optical terminal please purchase an optical fiber cable for the connection cord. For details, consult your JVC dealer.
- Remove the terminal cover and the cable's protective cap before connecting the optical fiber cable.

* To perate COMPU LINK controls system and DDRP system correctly, read the Amplifier Manual precisely if you connect to the Amplifier equipped with changeover switch between digital and analog.

AC POWER CORD


COMPU LINK-1 SYNCHRO
DIGITAL OUT
OPTICAL
OUTPUT
FIXED
VARIABLE
LEFT
RIGHT
AC POWER CORD
PHONO
GND
CD
LINE 1
LINE 2
LINE 3
RIGHT
LEFT
REC
DAT 1/TAPE 2
PLAY
SPEAKERS
DIGITAL 1
DIGITAL 2
REC
DAT
PLAY
DIGITAL
ANALOG
COMPU LINK-1 SYNCHRO
*

An example of an amplifier Fig. 11

DESCRIPTION AND FUNCTIONS

① **POWER (▂ ON ▮ STANDBY)**
Press to turn on the power, the display will light. Press again to turn the power off. The display will go off.
A small amount of power (2 watts) is consumed in the standby mode. To turn the power off completely, disconnect the power cord from the wall outlet.

② **OPEN/CLOSE (⏏)**
Press to move the disc platter in and out. Press once and the disc platter will move out; now you can load a disc. Press again to move the platter back in. The disc is now ready to be played.
If it is pressed during play, play will be interrupted. And the program will be erased from memory and the disc platter will come out.

③ **Disc Platter**
Load the disc to be played.

④ **(◀◀)**
When this button is pressed during play or pause mode, the CD player will begin to scan backwards. In such a case, when the button is kept pressed, the CD player will backward-search slowly for about 3 seconds, and then go into a higher speed search.

⑤ **(▶▶)**
When this button is pressed during play or pause mode, the CD player will begin to scan forward. In such a case, when the button is kept pressed, the CD player will forward-search slowly for about 3 seconds and then go into a higher speed search.

⑥ **(|◀◀)**
Press this button to locate the start of the current selection or to go back to the previous selection during play. Play will go back one selection each time the button is pushed. If the button is held down, play will continue to go back one selection at a time until the button is released.

⑦ **(▶▶|)**
Press to go to the start of the next selection. Every time this button is pressed, the pickup goes forward by one selection.Holding the button down moves the pickup forward continuously.

⑧ **STOP/CLEAR (■)**
Press to stop play. A few seconds after the disc has stopped rotating, the player goes into the standby mode with the track number "1" shown in the display window. The player is then ready to play.

⑨ **PLAY ▶/❚❚ PAUSE**
Press to start play. If the disc platter is out press this button, and disc platter will then move in and play will start (without pressing the [OPEN/CLOSE (⏏) button].
Press this button again to suspend play temporarily. The optical pickup stops and the disc continues to rotate. This status is called the pause mode.

⑩ **PHONES LEVEL(XL-Z451TN/XL-Z452BK)**
Adjust the volume of the head phones.
PHONES/OUTPUT LEVEL (XL-Z551TN/XL-Z552BK)
Adjust the volume of the head phones and the output level of VARIABLE OUTPUT Terminals.

Note:

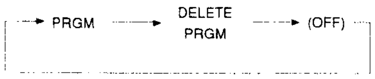
- **When listening to music by the headphones, be careful not to abuse your ears by setting the volume too high. Adjust the volume properly to obtain ear-pleasing listening.**

⑪ **PHONES**
Insert the headphones into this jack.

⑫ **REPEAT ALL/1**
Press this button to play one selection, all the selections or the programmed selections of the disc repeatedly.
When desiring all the selections, press the button once. "REPEAT" will be lit in the display window. When desiring one selection, press the button once again. "REPEAT 1" will be lit in the display window. To release this repeat play, press the [REPEAT ALL/1] button again.

⑬ **EDITING**
When editing the disc data in the cassette tape, the time interval can be established in advance in accordance with the tape length. When this button is pressed, "EDIT" appears in the display window.

⑭ **PRGM/DELETE PRGM/OFF**
To program the sequence of the selections to be played, press this button while the CD player is in the standby mode.
[PRGM/DELETE PRGM/OFF]
Each time [PRGM/DELETE PRGM/OFF] button or [PROGRAM MODE] button on the remote control unit is pressed, the indication changes in the following order.



Up to 32 selections can be programmed.

PRGM:	You can indicate your favourite song to be programmed by numeric button.
DELETE PRGM:	You can indicate the song to be taken out of the program by numeric button.

⑮ **SIDE A/B**
Use this button to designate the tape side when programming for edit recording.

⑯ **CANCEL**
Press this button to cancel a programmed tune, each time it is pressed, one tune is cancelled.

⑰ **DDRP**
Press for DDRP recording. If the player is connected to a DDRP system compatible cassette deck, when this button is pressed, the optimum recording level is automatically set and recording is started.

⑱ **RANDOM**
When this button is pressed, the CD player will be ready for random play.

⑲ **Display Window (MULTI MODE DISPLAY)**
This shows the total number of selections on the disc, the total playing time, the elapsed playing time, the remaining playing time, various program data, etc.

⑳ **REMOTE SENSOR**

㉑ **Numeric buttons**
To designate the desired track numbers or establish the time interval during the tape editing, use these buttons. If the desired number is 20 or less, use the [1] ~ [20] buttons. However, to assign a track number greater than 20, use the [+10] button and the [1] ~ [20] button.

Examples

- To assign the 25th track, press the [+ 10] button once then press the [15] button.
- To assign the 30 minutes, press [+ 10] button once then press the [20] button.

DISPLAY

㉒ REPEAT

Lights when the repeat play is ready.

REPEAT : Lights when the repeat play of all the selections is entered.
REPEAT 1 : Lights when the repeat play of only one selection is entered.

㉓ PLAY/PAUSE Indicators

► : Lights during play.
❚❚ : Lights in the pause mode.

㉔ TRACK

Lights when all the selections of the disc are shown.

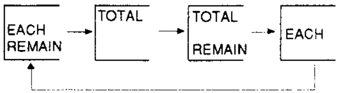
Shows the programmed selection numbers or the current selection number of the disc during programmed play.

㉕ STEP

Shows the numbers of memory steps of the programmed selections.

㉖ TOTAL/EACH/REMAIN

Each time the [DISPLAY MODE] button on the remote control unit is pressed, the indication changes in the following order.



EACH : Shows elapsed time for the each selection.
EACH REMAIN : Shows the remaining playing time of each selection. (Up to 31st selection can be displayed.)
TOTAL : Shows the elapsed playing time of the disc or the programmed selections.
TOTAL REMAIN : Shows the remaining playing time of the disc or the programmed selections. (Up to 31st selection can be displayed.)

㉗ Time Indicator (MINUTE)

Shows the total playing time, elapsed playing time, or the remaining playing time in minutes.

㉘ Time Indicator (SECOND)

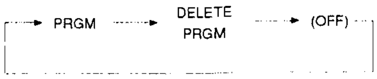
Shows the total playing time, elapsed playing time, or the remaining playing time in seconds.

㉙ DDRP INDICATORS

DDRP : Blinks during DDRP operation and lights steadily during DDRP recording.
ATT : Indicates the output level from the CD player during DDRP operation.
dB : Indicates the sound volume level during playback and during DDRP operation.

㉚ [PRGM/DELETE PRGM/OFF]

Each time [PRGM/DELETE PRGM/OFF] BUTTON OR [PROGRAM MODE] button on the remote control unit is pressed, the indication changes in the following order.



PRGM : You can indicate your favourite song to be programmed by numeric button.
DELETE PRGM: You can indicate the song to be taken out of the program by numeric button.

㉛ RANDOM

Lights in RANDOM MODE.

㉜ EDIT

Lights during editing recording.

[EDIT AUTO] : Lights during Auto Edit Recording.
[EDIT PRGM] : Lights during Program Edit Recording.
A : Lights when the A side of the tape is designated.
B : Lights when the B side of the tape is designated.

㉝ Program Chart

This chart indicates the number of each selection on the disc.

When a selection is programmed, the selection number lights.

REMOTE CONTROL UNIT

The remote control range is approximately 7 metres (23 ft.)
Pointing the remote control on an angle to the receiver, will reduce the useful distance of the remote control.
Use gentle but firm pressure when pressing the remote control buttons.

If you can not do remote control, the disc platter sliding out, the REMOTE SENSOR might be behind the disc platter. So operate as below.

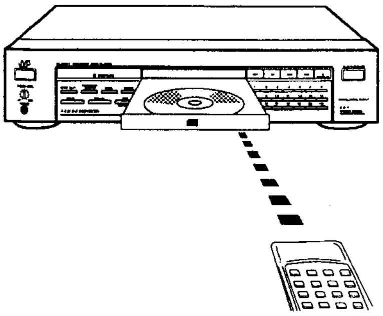


Fig. 13

Notes:

- **The provided remote control unit has operating buttons which are basically identical with those of the CD player. The differences are the following button which are not on the CD player.**
- **[STOP (■)] button on the remote control unit cannot cancel the programmmed selections.**

RM-SX451U for XL-Z451TN/XL-Z452BK

㉝ Numeric key operating buttons
To designate the desired track numbers or establish the time interval during the tape editing, use these buttons. If the desired number is 10 or less, use the [1]~[10] buttons. However, to assign a track number greater than 10, use the [+10] button and the [1]~[10] buttons.

Example

- To assign the 25th track, press the [+10] button twice then press the [5] button.

㉞ Pause (❚❚)
Press to stop play temporarily.

Note:

- **To continue playing, press the [PLAY (►)] button again.**

㉟ SEARCH (◄◄, ►►)
◄◄ : Scans backward quickly during play.
►► : Scans forward quickly during play.

㊱ REPEAT ALL/1
Press this button to play one selection, all the selections or the programmed selections of the disc repeatedly.

㊲ DISPLAY MODE
This button changes the time data in the display window.

㊳ OPEN/CLOSE (▲)
Press to move the disc platter in and out.

㊴ PROGRAM MODE
To program the sequence of the selections to be played, press this button while the CD player is in the standby mode. The PROGRAM indicator lights and up to 32 selections can be programmed. This can operate the same function as PRGM/DELETE, PRGM/OFF button in main unit. Please refer to P.6.

㊵ CANCEL
Press this button to cancel the programmed tune.Each time it is pressed, one tune is cancelled.

㊶ RANDOM
When this button is pressed, the CD player will be ready for random play.

㊷ Play (►)
Press to start play.

㊸ Stop (■)
Press to stop play. However, this does not clear the programmed selections.

㊹ AUTO SEARCH/CHECK (I◄◄, ►►I)
I◄◄ : Skips to the beginning the previous track.
►►I : Skips to the beginning of the next track.
It can be also used to check the program order, or to cancel part of the program.

㊺ INDEX
(—•): To start play from the desired index point, scan backward to the desired index point with this button.
(•—): To start play from the desired index point, scan forward to the desired point with this button.

RM-SX551U for XL-Z551TN/XL-Z552BK

(51) OPEN/CLOSE (▲)
Press to move the disc platter in and out.

(52) Numeric key operating buttons
To designate the desired track numbers or establish the time interval during the tape editing, use these buttons. If the desired number is 20 or less, use the [1]~[20] buttons. However, to assign a track number greater than 20, use the [+10] button and the [1]~[20] buttons.

Example

- To assign the 25th track, press the [+10] button twice then press the [5] button.

(53) Stop (■)
Press to stop play. However, this does not clear the programmed selections.

(54) Pause (❚❚)
Press to stop play temporarily.

Note:

- **To continue playing, press the [PLAY (►)] button again.**

(55) SEARCH (◄◄, ►►)
◄◄ : Scans backward quickly during play.
►► : Scans forward quickly during play.

(56) PROGRAM MODE
To program the sequence of the selections to be played, press this button while the CD player is in the standby mode. The PROGRAM indicator lights and up to 32 seletions can be programmed.
This can operate the same function as PRGM/DELETE, PRGM/OFF button in main unit . Please refer to P.6.

(57) CANCEL
Press this button to cancel the programmed tune.Each time it is pressed, one tune is cancelled.

(58) RANDOM
When this button is pressed, the CD player will be ready for random play.

(59) REPEAT ALL/1
Press this button to play one selection, all the selections or the programmed selections of the disc repeatedly.

(60) DISPLAY MODE
This button changes the time data in the window.

(61) Play (►)
Press to start play.

(62) AUTO SEARCH/CHECK (I◄◄, ►►I)
I◄◄ : Skips to the beginning the previous track.
►►I : Skips to the beginning of the next track.
It can be also used to check the program order, or to cancel part of the program.

(63) INDEX
(—•): To start play from the desired index point, scan backward to the desired index point with this button.
•—): To start play from the desired index point, scan forward to the desired point with this button.

(64) VOLUME (PHONES and Output Level)
⊞ : The volume increases slowly and continuously in proportion to how long the [+] button is being pressed.
⊟ : The volume decreases slowly and continuously in proportion to how long the [–] button is being pressed.

HOW TO OPERATE

Preliminary Operation

1. Turn on and adjust components such as an amplifier.
2. Turn on the CD player.
3. Press the [OPEN/CLOSE (▲)] button to slide the disc platter out.
4. With its label side up, load a disc on the disc platter.
5. Press the [OPEN/CLOSE (▲)] button again to slide the disc platter in.

Notes:

- **The display shows the number of tracks and total playing time of the disc for 3 seconds.**
- **You can also close the disc platter by pressing the [PLAY ►/II PAUSE] button. In such a case, play starts immediately with the first selection of the disc.**

To Play From the First Selection

Press the [PLAY ►/II PAUSE] button.

To Play From Any Desired Selection

1. Designate the desired selection number by the numeric buttons.

Examples:

- To assign the 25th track, press the [+10] button twice and then press the [5] button.
- To assign the 30th track, press the [+10] button twice and then press the [10] button.

The same operation can also be carried out using [(|◀◀, ▶▶|)] button.

1. Designate the desired selection number by the [(▶▶|]) button.
2. Press the [PLAY ►/II PAUSE] button.

To Stop Play Temporarily

Press the [PLAY ►/II PAUSE] button.

Note:

- **To continue playing, press the [PLAY ►/ II PAUSE] button again.**

To Switch Selections During Play

- **To skip to the next selection**
  Press the [(▶▶|)] button.
- **To skip to the previous selection**

1. Press the [(|◀◀)] button once and locate the start of the current selection.
2. Immediately after step 1, press the [(|◀◀)] button again.

To Repeat Play

- **To repeat all the selections**

1. Press the [REPEAT ALL/1] button once.
2. Press the [PLAY ►/II PAUSE] button.

- **To repeat one selection**

1. Press the [REPEAT ALL/1] button twice.
2. Designate the desired selection number by the [(▶▶|)] button.
3. Press the [PLAY ►/II PAUSE] button.

To Stop Play

Press the [STOP/CLEAR (■)] button.

To Remove the Disc

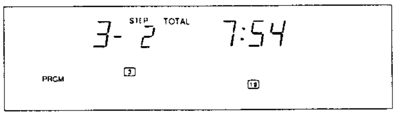
Press the [OPEN/CLOSE (▲)] button.

To Program Play

1. Press the [STOP/CLEAR (■)] button.
2. Press the [PRGM/DELETE PRGM/OFF] button.
3. Program any desired selections with the numeric key.

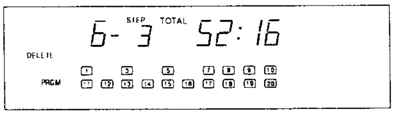
[PRGM] is ON

The sequence of the songs that you programmed will be indicated by pressing numeric button.
ex : 19th song will be played first and 3rd song will be played second.



[DELETE, PRGM] is ON

The sequence of the songs that you want to delete from program will be indicate by pressing numerical button.
ex : All the song will be played except 2 4 6



4. Press the [PLAY ►/II PAUSE] button.

To Correct the Program

- **To correct all the program**

1. Press the [STOP/CLEAR (■)] button.
2. Start programming again from the beginning.

- To correct each content of the program during programming

1. Press the [(|◀◀)] button to go back to the program which needs to be cancelled.
2. Press the [CANCEL] button.
3. Program a desired selection with the numeric key.

* Newly programmed selection is added to the last of the program.

To Check the Program

Press the [(|◀◀ , ▶▶|)] button.

Notes:

- **A maximum of 32 out of 99 tunes can be selected.**
- **When the programmed play is performed, the selection number programmed first and the total playing time of programmed selections are displayed.**
- **The total playing time display is useful when making recording from the CD player.**
- **When programming is carried out with the disc platter out, the total playing time of the programmed selections will not be displayed.**
- **When the total playing time of all the selected tunes exceeds 99 minutes and 59 seconds, the time display will be disabled and only the center bar will be displayed.**
- **Pressing the [(▶▶|)] button when in the programmed play causes the unit to skip to the next programmed selection.**
- **To stop temporarily during programmed play, press the [PLAY ►/II PAUSE] button. Press this button again to restart.**

To Random Play

1. Press the [STOP/CLEAR (■)] button.
2. Press the [RANDOM] button.
3. Press the [PLAY ►/II PAUSE] button.

To Cancel the part of Random Play

- **After the [STOP/CLEAR] and [RANDOM] button is pressed:**

1. Select the track(s) you want to cancel with the numeric buttons.

To add cancelled track(s) to Random Play

1. Select the cancelled track(s) you want to add to Random Play with the numeric buttons or [(|◀◀, ▶▶|)] button.
2. Press the [PRGM/DELETE PRGM/OFF] button.

To Perform Synchronized Recording

Synchronized recording is possible by connecting the cassette deck to the COMPU LINK-1/ SYNCHRO terminals of the CD player through the remote cable.

1. Press the [REC (O)] and [PAUSE (II)] buttons of the cassette deck.
2. Press the [PLAY ►/II PAUSE] button of the CD player to start the synchronized recording.
3. Press the [STOP/CLEAR (■)] button to stop recording.

To record using DDRP

Whenever the remote cable supplied is connected to the COMPU LINK-1/SYNCHRO terminals housed in a DDRP-compatible cassette deck, DDRP recording mode is available.
By pressing the [DDRP] button, recording is automatically started as soon as the peak level search routine is completed.

To Perform Edit Recording

- **Auto Edit Recording**
  Automatically distributes and edits the tracks accommodated within the specified time to sides A and B.

1. Set a disc and press the [STOP/CLEAR (■)] button.
2. Press the [EDITING] button to light AUTO.
3. Set the recording time corresponding with the tape used, using the numerical buttons.

Examples:

- To assign the 54 minutes, press [+10] button 5 times then press the [4] button.
- To assign the 90 minutes, press [+10] button 8 times then press the [10] button.
  When the length of tape corresponds with the time displayed then the [SIDE A/B] button should be pressed.

4. Press the [DDRP] button.
   (When automatic setting of the recording level is not required, set the cassette deck to standby (REC PAUSE) and press the CD player [PLAY ► / ▮▮ PAUSE] button.)
   (When the synchro terminals are not connected, once the peak search is completed, set the cassette deck to record, and press the CD player [PLAY ► / ▮▮ PAUSE] button.)
   When the side A music programme has terminated, recording is automatically stopped.
   If side B is also to be recorded, turn the tape over and again press the [DDRP] button.
   (now recording will start immediately)

- **Program Edit Recording**

Edits the tracks accommodated within the specified time in the desired track order.

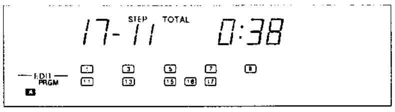
1. Set a disc and press the [STOP/CLEAR (■)] button.
2. Press the [EDITING] button to light PRGM.
3. Set the recording time corresponding with the tape used, using the numeric buttons.

Examples:

- To assign the 54 minutes, press [+10] button 5 times then press the [4] button.
- To assign the 60 minutes, press [+10] button 4 times then press the [20] button.

   When the length of tape corresponds with the time displayed then the [SIDE A/B] button should be pressed.

4. Select the tracks to be recorded on side A, using the numeric buttons.
   ex: [1] [3] [5] [7] [9] [11] [13] [15] [16] [17] [19] were selected on side A and there is 38 seconds left for recording.



5. Press the [SIDE A/B] button.
6. Select the tracks to be recorded on side B, using the numeric buttons.
7. Press the [DDRP] button.
   (When automatic setting of the recording level is not required, set the cassette deck to standby (REC PAUSE) and press the CD player [PLAY ►/ ▮▮ PAUSE] button.

   When the synchro terminals are not connected, once the peak search is completed, set the cassette deck to record, and press the CD player [PLAY ►/ ▮▮ PAUSE] button.)

   When the side A music programme has terminated, recording is automatically stopped.
   If side B is also to be recorded, turn the tape over and again press the [DDRP] button (now recording will start immediately).

Connecting to a cassette deck not DDRP-compatible, via the synchro terminals

Where connection is made to a cassette deck not DDRP compatible, via the synchro terminals, the recording process will be started by pressing the [DDRP] button.
In this case, the cassette deck input level will not be automatically set.
A preliminary recording should be made in order to ascertain input levels - the input level being then set up in accordance with the cassette deck instruction manual. Subsequently setting the input-level knob to the same position enables recording at the optimum level without a resetting process every time.

TROUBLE SHOOTING

What appears to be a malfuntion may not always be serious.
Make sure first.

Malfunction	**Reason**	**Troubleshooting**
Although the disc is inserted in the CD player, DISPLAY shows no data.	Is the disc placed upside down?	Place the disc on the disc tray with its label side up.
Selections cannot be programmed.	Is the 'PROGRAM" indicator lit?	Press the [PRGM/DELETE PRGM/ OFF] button.
Compu Link does not function.	Is the compu Link cable connected?	Connect the Compu Link cable.
The remote control unit does not funtion.	Are the batteries fresh?	Replace the batteries with new ones.
The sound is intermittent and is harsh to the ear.	Is the disc dirty?	Wipe off the surface with a soft cloth.
	Is the disc scratched?	Replace the disc with a new one.
	Is the disc warped?	Replace the disc with a new one.

SPECIFICATION

XL - Z451TN / XL - Z452 BK

System : Compact disc player
Signal detection system : Non-contact optical system
Number of channels : 2 channels
Frequency response : 2 Hz ~ 20,000 Hz
Dynamic range : 100 dB (1 kHz)
Signal/noise ratio : 112 dB (at digital 0)
Channel separation : 106 dB (1 kHz)
Harmonic distortion : 0.0015 % (1 kHz)
Wow and flutter : Less than measurable limit
Output level : 2.0 Vrms (full scale)
Digital Output Level (OPTICAL) : −22dBm ~ −15dBm (optical)
Number of program steps : 32 steps
Dimensions : 435 (W) x 102 (H) x 279 (D) mm (17-3/16" x 4-1/16" x 10-15/16")
Weight : 3.6 kg (8.0 lbs)

Accessories
Necessary : **Power cord 1**
Optional : Signal cord (1 m • 3.28 ft.) 1
: Remote cable (1 m • 3.28 ft.) 1
: Remote control unit (RM-SX451U) 1
: Battery (AAA, R03, UM-4) ...2

Design and specifications subject to change without notice.

POWER SPECIFICATION

Area	Line Voltage & Frequency	Power Consumption
U.S.A.	**AC120V ∿, 60Hz**	**15 Watts**
U.K.	**AC240V ∿, 50Hz**	**15 Watts**
Australia	**AC240V ∿, 50Hz**	**15 Watts**

XL - Z551TN / XL - Z552 BK

System : Compact disc player
Signal detection system : Non-contact optical system
Number of channels : 2 channels
Frequency response : 2 Hz ~ 20,000 Hz
Dynamic range : 100 dB (1 kHz)
Signal/noise ratio : 112 dB (at digital 0)
Channel separation : 106 dB (1 kHz)
Harmonic distortion : 0.0015 % (1 kHz)
Wow and flutter : Less than measurable limit
Output level (fixed) : 2.0Vrms (full scale)
Output level (variable) : 2.0Vrms (full scale)
Digital Output Level (OPTICAL) : −22dBm ~ −15dBm (optical)
Number of program steps : 32 steps
Dimensions : 435 (W) x 102 (H) x 279 (D) mm (17-3/16" x 4-1/16" x 10-15/16")
Weight : 4.2 kg (9.3 lbs)

Accessories
Necessary : **Power cord 1**
Optional : Signal cord (1 m • 3.28 ft.) 1
: Remote cable (1 m • 3.28 ft.) 1
: Remote control unit (RM-SX551U) 1
: Battery (AA, R6P, SUM-3) ...2

Design and specifications subject to change without notice.

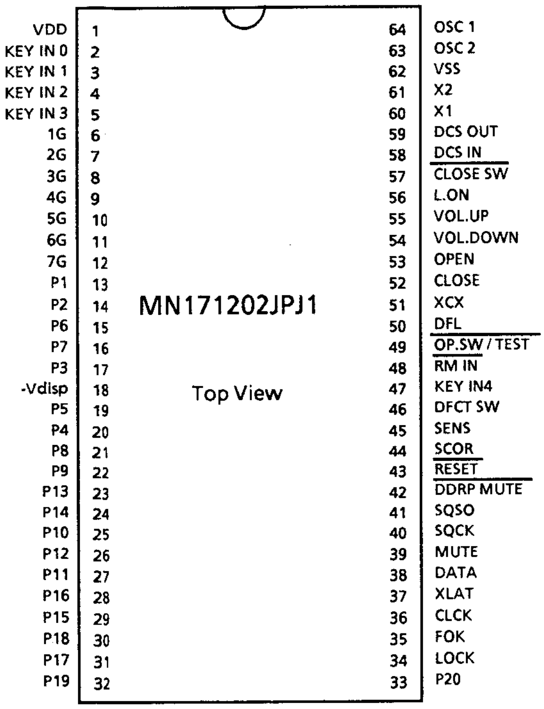
POWER SPECIFICATION

Area	Line Voltage & Frequency	Power Consumption
U.K.	**AC240V ∿, 50Hz**	**16 Watts**
Australia	**AC240V ∿, 50Hz**	**16 Watts**

Description of Major LSIs

■ MN171202JPJ1(IC201) : CD SYSTEM CONTROLLER

1. Terminal Layout


VDD 1
KEY IN 0 2
KEY IN 1 3
KEY IN 2 4
KEY IN 3 5
1G 6
2G 7
3G 8
4G 9
5G 10
6G 11
7G 12
P1 13
P2 14
P6 15
P7 16
P3 17
-Vdisp 18
P5 19
P4 20
P8 21
P9 22
P13 23
P14 24
P10 25
P12 26
P11 27
P16 28
P15 29
P18 30
P17 31
P19 32
MN171202JPJ1
Top View
64 OSC 1
63 OSC 2
62 VSS
61 X2
60 X1
59 DCS OUT
58 DCS IN
57 CLOSE SW
56 L.ON
55 VOL.UP
54 VOL.DOWN
53 OPEN
52 CLOSE
51 XCX
50 DFL
49 OP.SW / TEST
48 RM IN
47 KEY IN4
46 DFCT SW
45 SENS
44 SCOR
43 RESET
42 DDRP MUTE
41 SQSO
40 SQCK
39 MUTE
38 DATA
37 XLAT
36 CLCK
35 FOK
34 LOCK
33 P20

2. Key Matrix

	KEY IN 0 (PIN 2)	KEY IN 1 (PIN 3)	KEY IN2 (PIN 4)	KEY IN3 (PIN 5)	KEY IN4 (PIN 47)
1G (PIN 6)	OPEN / CLOSE	REPEAT ALL / 1	PROG	CANCEL	+ 10
2G (PIN 7)	EDIT	SIDE A/B	DDRP	RANDOM	▶/❚❚
3G (PIN8)	1	2	3	4	5
4G (PIN 9)	6	7	8	9	10
5G (PIN 10)	11	12	13	14	15
6G (PIN 11)	16	17	18	19	20
7G (PIN12)	◀◀	▶▶	⏮	⏭	■

3. Pin Functions

Pin NO.	symbol	I/O	Function	Pin NO.	symbol	I/O	Function
1	VDD	–	FL grid control output	33	P20	O	FL segment control output
2	KEY IN 0	I	Key matrix input	34	LOCK	I	Lock signal input
3	KEY IN 1	I	〃	35	FOK	I	FOK signal input
4	KEY IN 2	I	〃	36	CLOK	O	Clock signal for serial data transfer .
5	KEY IN 3	I	〃	37	XLAT	O	Latch signal for serial data transfer
6	1G	O	FL grid control output	38	DATA	O	Serial data output
7	2G	O	〃	39	MUTE	O	Muting signal output
8	3G	O	〃	40	SQCK	O	Clock output for reading SQSO
9	4G	O	〃	41	SQSO	O	80-bit Sub Q and 16-bit PCM Peak Level Data
10	5G	O	〃	42	DDRP MUTE	O	Mute signal output
11	6G	O	〃	43	RESET	I	Reset signal input
12	7G	O	〃	44	SCOR	I	Turns "H" when Sub code S0 or S1 is detected
13	P1	O	FL segment control output	45	SENS	I	Sense signal input
14	P2	O	〃	46	DFCT SW	O	Signal that goes "H" during focus serching
15	P6	O	〃	47	KEY IN4	I	Key matrix input
16	P7	O	〃	48	RM IN	I	Remote control signal input
17	P3	O	〃	49	OP.SW/ TEST	I	"L" with tray open / Entering test mode with TEST(L)
18	-Vdisp	–	Power supply for FL display	50	DFL	I	Digital Filter Latch signal output
19	P5	O	FL segment control output	51	XCX	–	This is "H" when the tracking loop is OFF
20	P4	O	〃	52	CLOSE	O	"CLOSE" signal output
21	P8	O	〃	53	OPEN	O	"OPEN" signal output
22	P9	O	〃	54	VOL.DOWN	O	Volume down signal output
23	P13	O	〃	55	VOL.up	O	Volume up signal output
24	P14	O	〃	56	L.ON	O	Laser control signal
25	P10	O	〃	57	CLOSE SW	I	"L" with tray closed
26	P12	O	〃	58	DCS IN	I	Compulink signal input
27	P11	O	〃	59	DCS OUT	O	Compulink signal output
28	P16	O	〃	60	X1	I	Connected to GND
29	P15	O	〃	61	X2	O	Non connection
30	P18	O	〃	62	VSS	–	Connected to GND
31	P17	O	〃	63	OSC 2	O	Clock oscillation output
32	P19	O	〃	64	OSC 1	I	Clock oscillation input

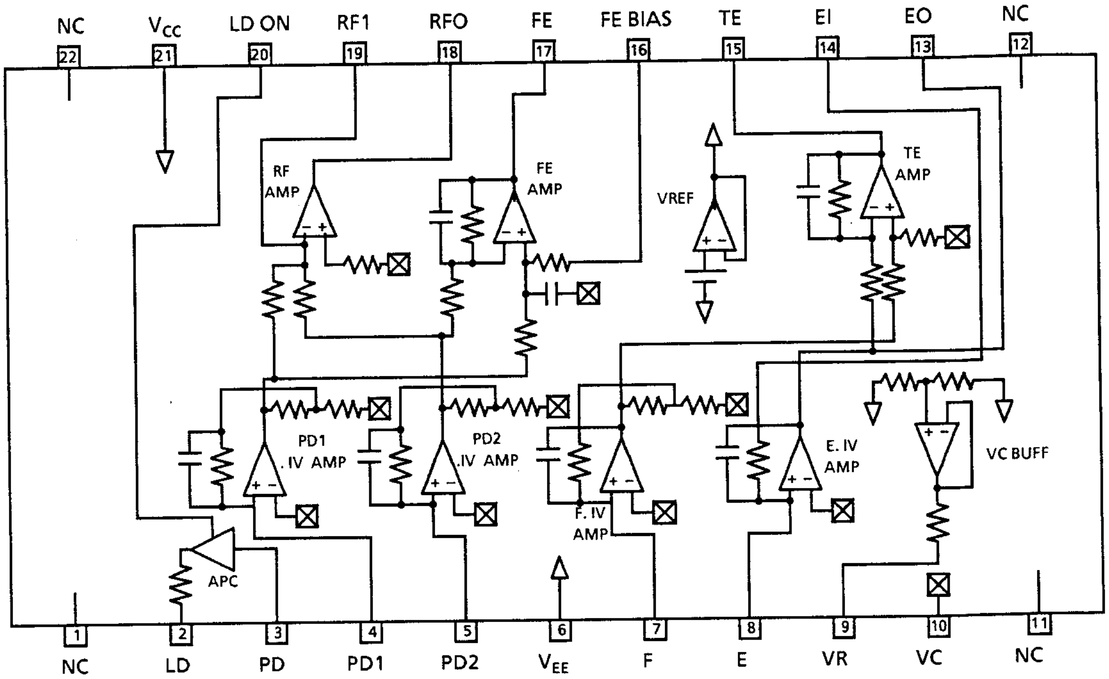
■ CXA1571S(IC501) : RF AMP FOR COMPACT DISC

1.Outline

The CXA1571S IC for compact disc 3-point method optical pickup output has the following functions.

- RF amplifier
- Focus error amp
- Tracking error
- APC circuit

2. Internal Block Diagram


NC
VCC
LD ON
RF1
RFO
FE
FE BIAS
TE
EI
EO
NC
22
21
20
19
18
17
16
15
14
13
12
RF AMP
FE AMP
VREF
TE AMP
PD1 IV AMP
PD2 IV AMP
F. IV AMP
E. IV AMP
VC BUFF
APC
1
2
3
4
5
6
7
8
9
10
11
NC
LD
PD
PD1
PD2
VEE
F
E
VR
VC
NC

3. Pin Functions

Pin No.	Symbol	I/O	Function
2	LD	O	APC amp output pin.
3	PD	I	APC amp input pin.
4 5	PD1 PD2	I I	RF I-V amp inverted input pins; they are connected to the A + C and B + D pins of the photodiode and receive current input.
7 8	F-IN E-IN	I I	F and E I-V amp inverted input pins; they are connected to Photodiodes F and E and receive current input.
9	VR	O	$(V_{CC}+V_{EE})/2$ DC voltage output pin.
10	VC	I	VC intermediate voltage input pin; when dual ±5V power supplies are used, this pin is connected to GND; for a single +5V power supply, it is connected to the VR pin.
13	EO	O	Monitor output pin for I-V amp E.
14	EI	I	Gain adjustment pin for I-V amp E.
15	TE	O	Tracking error amp output pin.
16	FE-BIAS	I	Bias adjustment pin for the non-inverted side of the focus error amp.
17	FE	O	Focus error amp output pin.
18	RF O	O	RF amp output pin.
19	RF I	I	RF inverted side input pin; the resister connected between this pin and the RFO pin determines the gain of theRF amp.
20	LD-ON	I	This pin switches the APC amp on / off: on for VCC, off for ground.
21	VCC	-	Power supply

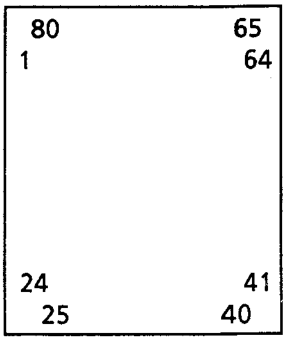
■ CDX2500AQ(IC401) : DIGITAL SIGNAL PROCESSOR

1. Outline

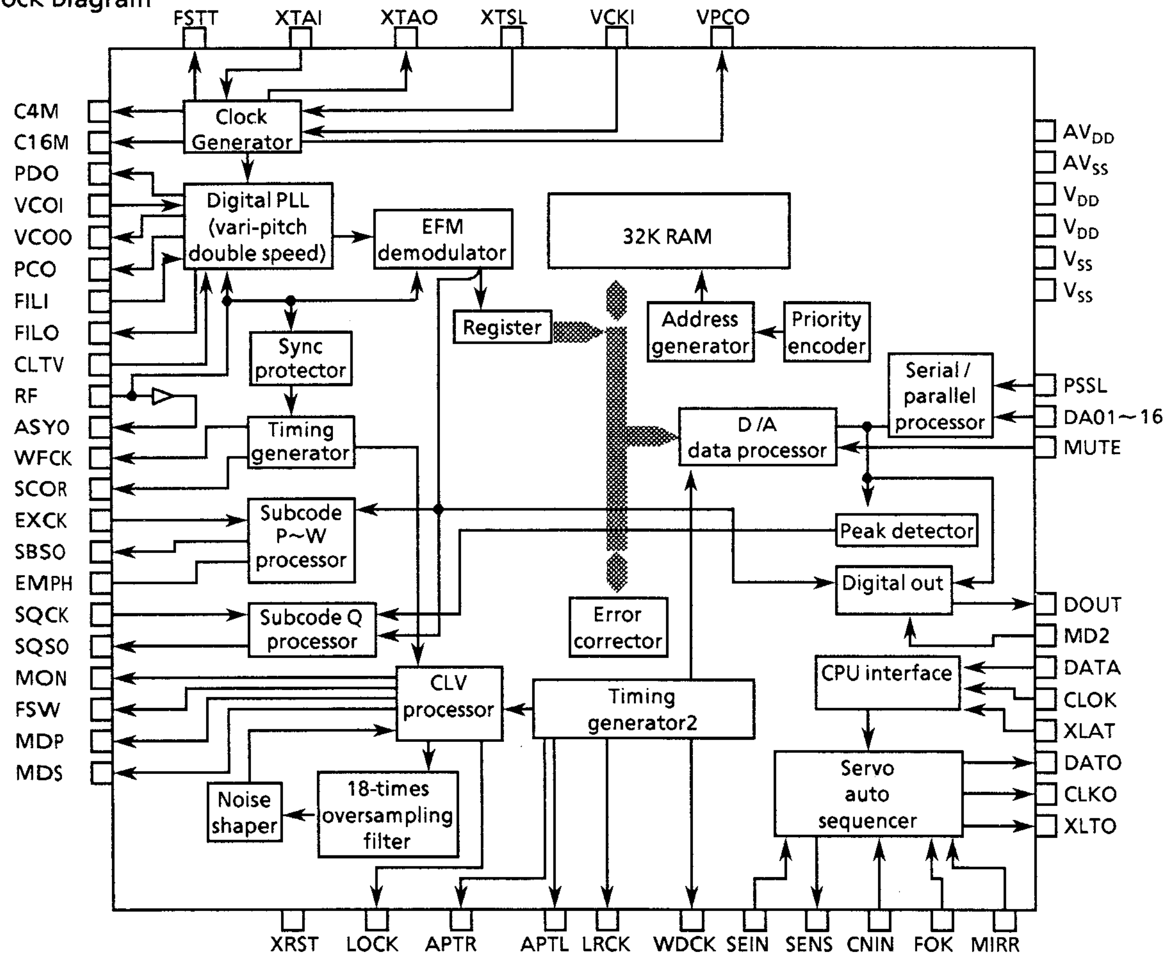
The CDX2500AQ is a digital signal processsing LSI designed for use in compact disc players. It has the following functions:

- All digital signals for regeneration are processed using one chip.
- The built-in RAM enables high-integration mounting.
- Generation by the use of a digital PLL of bit clock pulses for strobing the EFM signal.
- EFM data demodulation
- Subcode demodulation and subcode Q data error detection
- Digital spindle servo system (incorporating an oversampling filter)

2.Terminal Layout


80
65
1
64
24
41
25
40

3.Block Diagram


FSTT
XTAI
XTAO
XTSL
VCKI
VPCO
C4M
C16M
PDO
VCOI
VCOO
PCO
FILI
FILO
CLTV
RF
ASYO
WFCK
SCOR
EXCK
SBSO
EMPH
SQCK
SQSO
MON
FSW
MDP
MDS
Clock Generator
Digital PLL (vari-pitch double speed)
EFM demodulator
32K RAM
Register
Address generator
Priority encoder
Sync protector
Timing generator
Serial / parallel processor
D /A data processor
Subcode P~W processor
Peak detector
Digital out
Subcode Q processor
Error corrector
CPU interface
CLV processor
Timing generator2
Servo auto sequencer
Noise shaper
18-times oversampling filter
AV$_{DD}$
AV$_{SS}$
V$_{DD}$
V$_{DD}$
V$_{SS}$
V$_{SS}$
PSSL
DA01~16
MUTE
DOUT
MD2
DATA
CLOK
XLAT
DATO
CLKO
XLTO
XRST
LOCK
APTR
APTL
LRCK
WDCK
SEIN
SENS
CNIN
FOK
MIRR

Notes:

- The data at the 64-bit slot is output in 2's complements on an LSB-first basis. The data at the 48-bit slot is output in 2's complements on an MSB-first basis.
- GTOP monitors the state of Frame Sync protection. ("H" : Sync protection window released)
- XUFG is a negative Frame Sync pulse obtained from the EFM signal before Frame Sync protection is effected.
- XPLCK is an inversion of the EFM PLL clock. The PLL is designed so that the falling edge of XPLCK coincides with a change point of the EFM signal.
- The GFS signal turns "H" upon coincidence between Frame Sync and the timing of interpolation protection.
- RFCK is a signal generated at 136-μs periods using a crystal oscillator.
- C2PO is a signal to indicate a data error.
- XRAOF is a signal issued when a jitter margin of ± 28F is exceeded by the 32K RAM.

4. Pin Functions

Pin No.	Symbol	I/O	Function
1	FOK	I	Focus OK input pin. Used for SENS output and servo auto sequencer.
2	FNW	O	Non connection
3	MON	O	Output for spindle motor ON / OFF control.
4	MDP	O	Output for spindle servo control.
5	MDS	O	Output for spindle servo control (Non connection).
6	LOCK	O	This terminal is "H"when the GFS signal sampled at 460Hz is "H".It turns "L" when the GFS signal turns out "L" 8 or more times in succession.
7~9	–	--	Non connection
10	TEST	I	Test pin (Normally at 0V)
11	PDO	O	Output of charge pump for analog EFM PLL (Non connection).
12	Vss	--	GND
13~16	–	--	Non connection
17	VCKI	O	Clock input from external VCO for vari-pitch control.fc = 16.9344MHz.
18	FILO	O	Output of filter for masterPLL (Slave = Digital PLL)
19	FILI	I	Input to filter for master PLL.
20	PCO	O	Output of charge pump for master PLL.
21	AVss		Analog GND
22	CLTV	I	VCO control voltage input for master PLL.
23	AV_{DD}	--	Analog power supply
24	RF	I	EFM signal input
25	TEST2	I	TEST pin (Connected to GND)
26	TEST3	I	TEST pin (Connected to GND)
27	ASYO	O	EFM full-swing output
28	TEST4	I	TEST pin (Connected to GND)
29	NC	--	Non connection
30	PSSL	I	Input used to switch the audio data output mode."L" for serial output,"H" for parallel output.
31	WDCK	O	D / A interface for 48-bit slot. Word clock f = 2Fs.
32	LRCK	O	D / A interface for 48-bit slot. LR clock f = Fs.
33	V_{DD}	--	Power supply
34	DA16	O	Output DA16(MSB) when PSSL = 1 or serial data from 48-bit slot(2's completements,MSB first) when PSSL = 0.
35	DDA15	O	Output DA15 when PSSL = 1 or bit clock from 48-bit slot when PSSL = 0.
36~51	–	--	Non connection
52	VSS	--	GND
53	XTAI	I	Input to 16.9344MHz Xtal oscillation circuit or 33.8688MHz input.
54	XTAO	O	Output of 16.9344 MHz Xtal oscillation circuit.
55	XTSL	I	Xtal selection input pin. "L" for 16,344MHz Xtal, "H" for 33.8688 MHz Xtal.
56~58			Non connection
59	MD2	I	Digital-Out ON/OFF control. "H" for ON, "L" for OFF.
60	DOUT	O	Digital-Out output pin.
61,62	–	--	Non connection
63	SCOR	O	Turns "H" when subcode Sync S0 or S1 is detected.
64	SBSO	O	Serial output of Sub P to W.
65	EXCK	I	Clock input for reading SBSO.
66	SQSO	O	Outputs 80-bit Sub Q and 16-bit PCM peak-level data.
67	SQCK	I	Clock input for reading SQSO.
68	MUTE	I	"H" for muting, "L" for release.
69	SENS	--	SENS output to CPU.
70	XRST	I	System reset. "L" for resetting.
71	DATA	I	Inputs serial data from CPU.
72	XLAT	I	Latches serial data input from CPU at falling edge.
73	V_{DD}	--	Power supply(+ 5V)
74	CLOK	I	Inputs serial data transfer clock from CPU.
75	SEIN	I	Inputs SENSE from SSP.
76	CNIN	I	Inputs track jump count signal.
77	DATO	O	Outputs serial data to SSP.
78	XLYTO	O	Latches serial data output to SSP at falling edge.
79	CLKO	O	Outputs serial data transfer clock to SSP.
80	MIRR	I	Inputs mirror signal to be used by auto sequencer when jumping 128 or more tracks.

■ CXA1372S (IC601) : RF SIGNAL PROCESSING SERVO AMPLIFIER

1.Outline

The CXA1372S is a bipolar IC developed for RF signal processing (focus OK, mirror, defect detection, EFM comparator) and servo control.

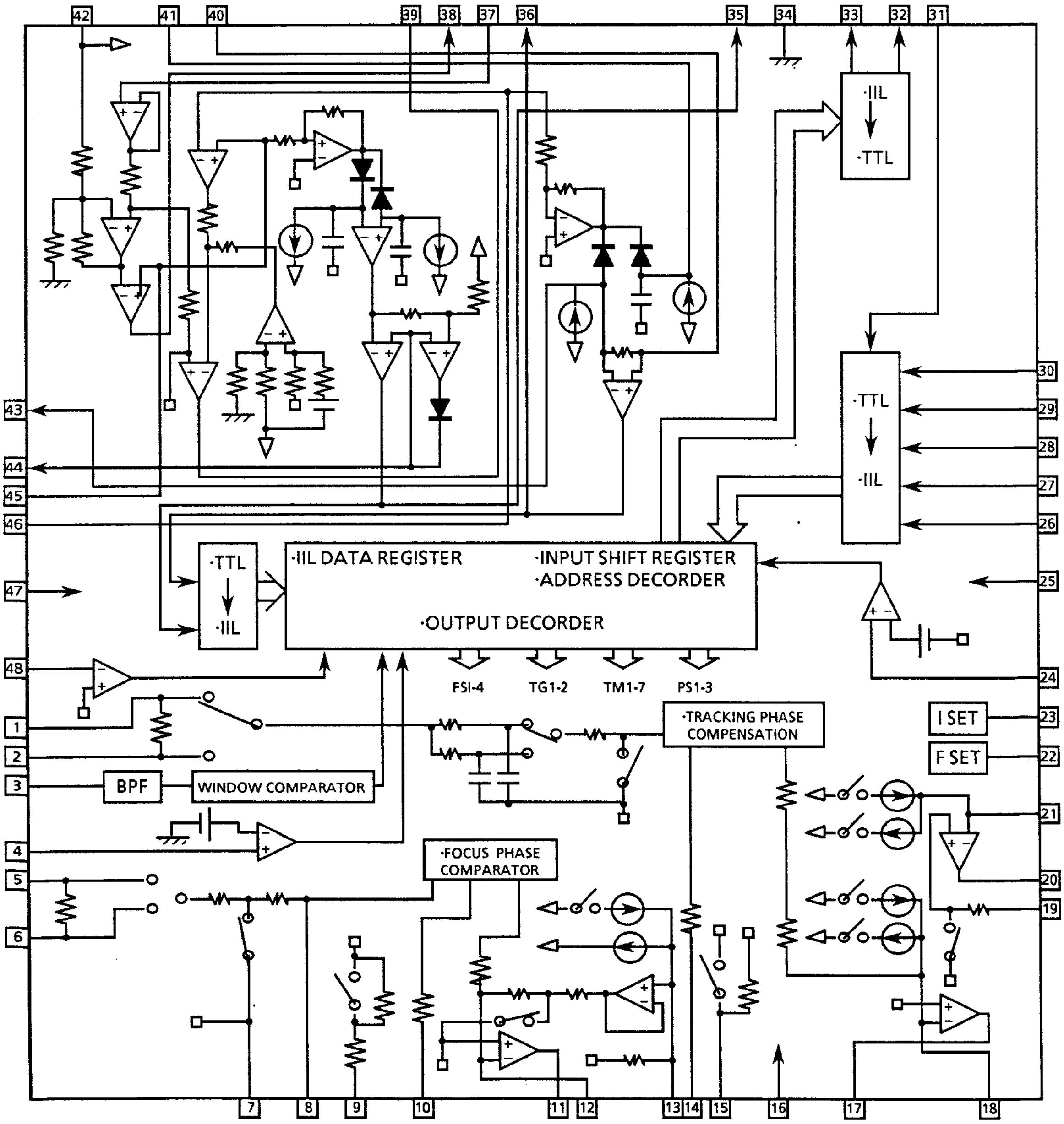
2.Functions

- Auto asymmetry control
- Focus OK detection circuit
- Mirror detection circuit
- Defects detection, counter measures circuit
- EFM comparator
- Focus servo control
- Tracking servo control
- Sled servo control

3.Terminal Layout

TE	1	48	TZC
TDFCT	2	47	DVEE
ATSC	3	46	RFO
FZC	4	45	RFI
FE	5	44	CP
FDFCT	6	43	CB
VC	7	42	DVCC
FGD	8	41	CC2
FS3	9	40	CC1
FLB	10	39	FOK
FEO	11	38	EFM
FE –	12	37	ASY
SRCH	13	36	DFCT
TGU	14	35	MIRR
TG2	15	34	DGND
AVCC	16	33	SENS
TAO	17	32	C.OUT
TA –	18	31	XRST
SL +	19	30	DATA
SLO	20	29	XLT
SL –	21	28	CLK
FSET	22	27	LOCK
ISET	23	26	DIRC
SSTOP	24	25	AVEE

4.Internal Block Diagram


42
41
40
39
38
37
36
35
34
33
32
31
·IIL
·TTL
·TTL
·IIL
30
29
28
27
26
25
24
23
22
21
20
19
18
43
44
45
46
47
48
1
2
3
4
5
6
·TTL
·IIL
·IIL DATA REGISTER
·INPUT SHIFT REGISTER
·ADDRESS DECORDER
·OUTPUT DECORDER
FSI-4
TG1-2
TM1-7
PS1-3
·TRACKING PHASE COMPENSATION
I SET
F SET
BPF
WINDOW COMPARATOR
·FOCUS PHASE COMPARATOR
7
8
9
10
11
12
13
14
15
16
17

5.Pin Functions

Pin No	Symbol	I/O	Function
1	TE	I	Input pin of tracking error amplifier.
2	TDFCT	I	Capacitor connecting pin for time constant during defects.
3	ATSC	I	Window comparator input pin for ATSC detection.
4	FZC	I	Pin for focus zero-cross comparator input.
5	FE	I	Input pin of focus error.
6	FDFCT	I	Capacitor connecting pin for time constant during defect functions.
7	VC	I	Center voltage input pin. For dual power: GND For single power supply: (VCC + GND)/2
8	FGD	I	Connect a capacitor between this pin and pin3 to reduce high-frequency gain.
9	FS3	I	The high-frequency gain of the focus servo is switched through FS3 ON and OFF.
10	FLB	I	Time constant external pin to raise the low bandwidth of the focus servo.
11	FEO	O	Focus drive output.
12	FE-	I	Inverse input for focus amplifier.
13	SRCH	I	Time constant external pin for formation of focus search waveform.
14	TGU	I	Time constant external pin for the selection of tracking high band gain.
15	TG2	I	Time constant external pin for the selection of tracking high band gain.
16	AVCC	–	Power supply
17	TAO	O	Tracking drive output.
18	TA-	I	Inverse input pin for tracking amplifier.
19	SL +	I	Non- inverse input pin for sled amplifier.
20	SLO	O	Sled drive output.
21	SL-	I	Inverse input pin for sled amplifier.
22	F SET	I	Pin to set peak frequency of focus tracking phase compensation and fo of CLV LPF.
23	I SET	I	Current is input to determine focus search, track jump, and sled kick height.
24	S STOP	I	Limit SW ON/OFF signal detection pin for disc inner periphery detection.
25	AVEE	–	– 5V
26	DIRC	I	Pin for one-track jump. Contains 47kΩpull-up resistor.
27	LOCK	I	At "L" sled runaway prevention circuit operate. Contains a 47kΩpull-up resistor.
28	CLK	I	Serial data transfer clock input from CPU.
29	XLT	I	Latch input from CPU.
30	DATA	I	Serial data input from CPU.
31	XRST	I	Reset input pin, reset at "L".
32	C.OUT	O	Track number count signal output.
33	SENS	O	Outputs FZC, AS, TZC and S STOP through command from CPU.
34	DGND	–	GND
35	MIRR	O	MIRR comparator output pin.
36	DFCT	O	Output pin of DEFECT comparator.
37	ASY	I	Input pin of auto asymmetry control.
38	EFM	O	Output pin of EFM comparator.
39	FOK	O	Output pin of FOK comparator.
40	CC1	I	Output pin of DEFECT bottom hold.
41	CC2	O	Input pin for the capacitance coupled output of DEFECT bottom hold.
42	DVCC	–	– 5V
43	CB	I	Connection pin of DEFECT bottom hold capacitor.
44	CP	I	Connecting pin of MIRR hold condenser. Non-inverted input pin of MIRR comparator.
45	RFI	I	Input pin with coupling capacitor where RF summing amplifier output is connected.
46	RFO	O	Output pin of RF summing amplifier and check point of eye pattern.
47	DVEE	–	– 5V
48	TZC	I	Input pin of tracking zero-cross comparator.

■JCE4501(IC302) : D / A CONVERTER

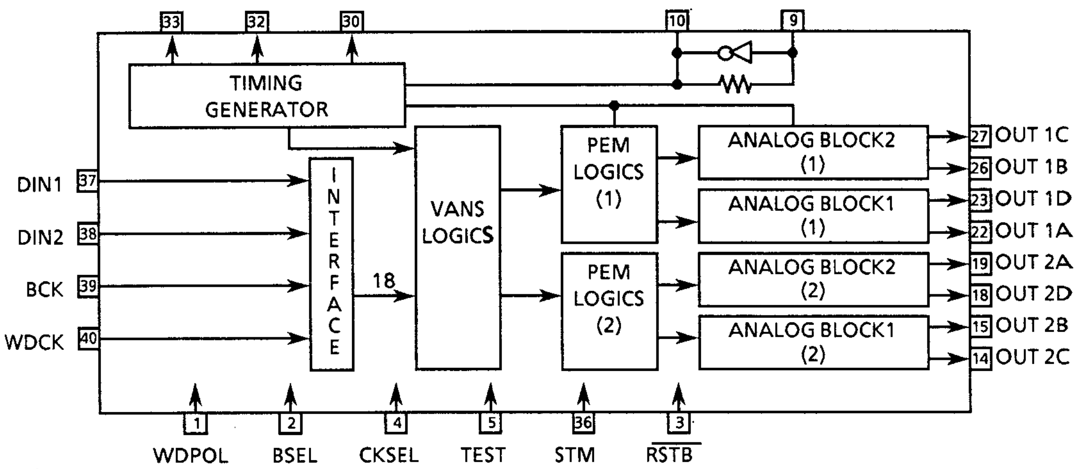
1. Outline

The JCE4501 is a CMOS digital-analog converter with independent left and right channels. It was developed for PCM digital audio equipment. It features pulse edge modulation (PEM) and Victor advanced noise shaping (VANS) for resolution equipment to 20 bits(0-20kHz) and a low distortion ratio. At JVC, this type of digital-analog converter is called a DD converter.

2. Terminal Layout

WDPOL	1	40	WDCK
BSEL	2	39	BCK
RSTB	3	38	DIN2
CLKSEL	4	37	DIN1
TEST	5	36	STM
COM	6	35	NC
NSUB	7	34	DVDD2
DVDD1	8	33	CKO3
XIN	9	32	CKO2
XOUT	10	31	DVSS2
DVSS1	11	30	CKO1
NC	12	29	NC
AVSS1	13	28	AVSS4
OUT2C	14	27	OUT1C
OUT2B	15	26	OUT1B
AVDD1	16	25	AVDD4
AVDD2	17	24	AVDD3
OUT2D	18	23	OUT1D
OUT2A	19	22	OUT1A
AVSS2	20	21	AVSS3

3. Block Diagram

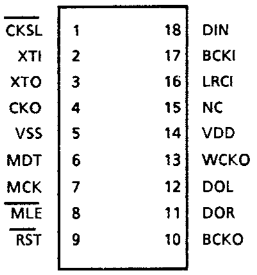

CKO3
CKO2
CKO1
XOUT
XIN
33
32
30
10
9
TIMING GENERATOR
DIN1 37
DIN2 38
BCK 39
WDCK 40
INTERFACE
18
VANS LOGICS
PEM LOGICS (1)
PEM LOGICS (2)
ANALOG BLOCK2 (1)
ANALOG BLOCK1 (1)
ANALOG BLOCK2 (2)
ANALOG BLOCK1 (2)
27 OUT 1C
26 OUT 1B
23 OUT 1D
22 OUT 1A
19 OUT 2A
18 OUT 2D
15 OUT 2B
14 OUT 2C
1 WDPOL
2 BSEL
4 CKSEL
5 TEST
36 STM
3 RSTB

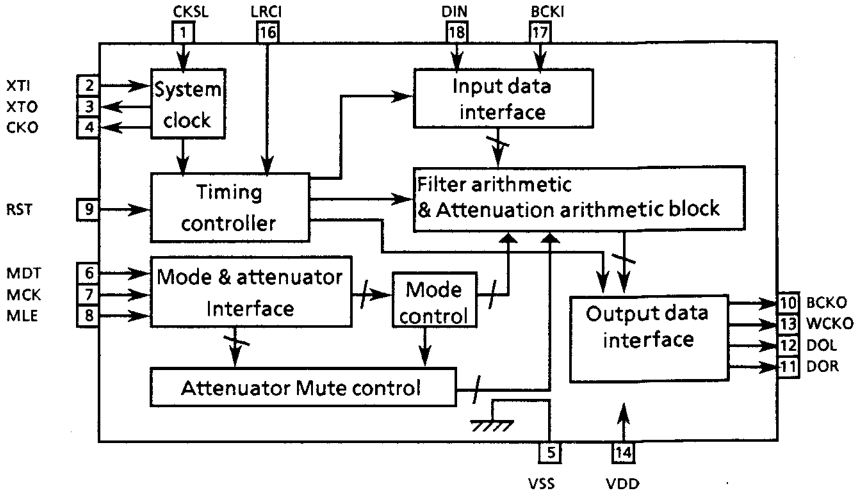
4. Pin Functions

Pin No	Symbol	I/O	Function	Pin No	Symbol	I/O	Function
1	WDPOL	I	Word data polarity switching pin	21	AVSS3	–	Analog ground pin 3
2	BSEL	I	H:CDX2554P format,L: YM3414 format	22	OUT1A	O	1A PEM output pin
3	RSTB	I	Reset pin (low active)	23	OUT1D	O	1D PEM output pin
4	CLKSEL	I	H: 256Fs mode,L: 384Fs mode	24	AVDD3	--	Analog power supply pin 3
5	TEST	I	Test mode switching pin	25	AVDD4	--	Analog power supply pin 4
6	COM	I	COM board voltage fastening pin	26	OUT1B	O	1B PEM output pin
7	NSUB	I	Silicon board voltage fastening pin	27	OUT1C	O	1C PEM output pin
8	DVDD1	--	Digital power supply pin 1	28	AVSS4	--	Analog ground pin 4
9	XIN	I	Crystal oscillator input pin	29	NC	--	To ground
10	XOUT	O	Crystal oscillator output pin	30	CKO1	O	Clock output pin 1(384Fs output)
11	DVSS1	--	Digital ground pin 1	31	DVSS2	--	Digital ground pin 2
12	NC	--	To ground	32	CKO2	O	Clock output pin 2(192Fs output)
13	AVSS1	--	Analog ground pin 1	33	CKO3	O	Clock output pin 3(128fFs output)
14	OUT2C	O	2C PEM output pin	34	DVDD2	--	Digital power supply pin 2
15	OUT2B	O	2B PEM output pin	35	NC	–	Non connection
16	AVDD1	--	Analog power supply pin 1	36	STM	I	Stereo/monaural switching pin. H:stereo,L:left channel,reversed polarity left channel
17	AVDD2	--	Analog power supply pin 2	37	DIN1	I	Left channel 18-bits 8Fs serial data input
18	OUT2D	O	2D PEM output pin	38	DIN2	I	Right channel 18-bits 8Fs serial data input
19	OUT2A	O	2A PEM output pin	39	BCK	I	Bit clock input pin
20	AVSS2	--	Analog ground pin 2	40	WDCK	I	Word clock input pin

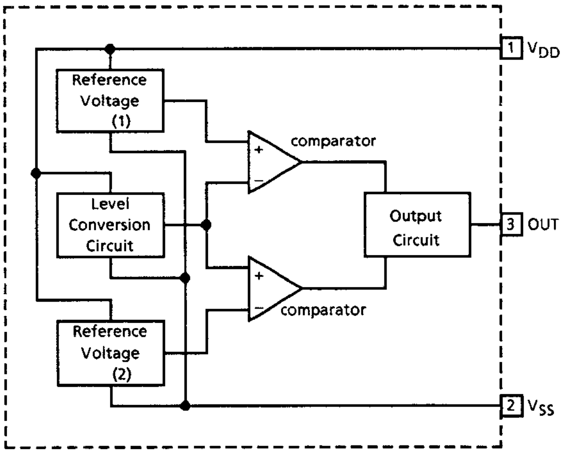
Internal Block Diagram Of Other ICs

■ SM5840DP(IC301):8-time oversampling digital filter


CKSL 1
XTI 2
XTO 3
CKO 4
VSS 5
MDT 6
MCK 7
MLE 8
RST 9
18 DIN
17 BCKI
16 LRCI
15 NC
14 VDD
13 WCKO
12 DOL
11 DOR
10 BCKO


CKSL 1
LRCI 16
DIN 18
BCKI 17
XTI 2
XTO 3
CKO 4
RST 9
MDT 6
MCK 7
MLE 8
System clock
Input data interface
Timing controller
Filter arithmetic & Attenuation arithmetic block
Mode & attenuator Interface
Mode control
Output data interface
Attenuator Mute control
10 BCKO
13 WCKO
12 DOL
11 DOR
5 VSS
14 VDD

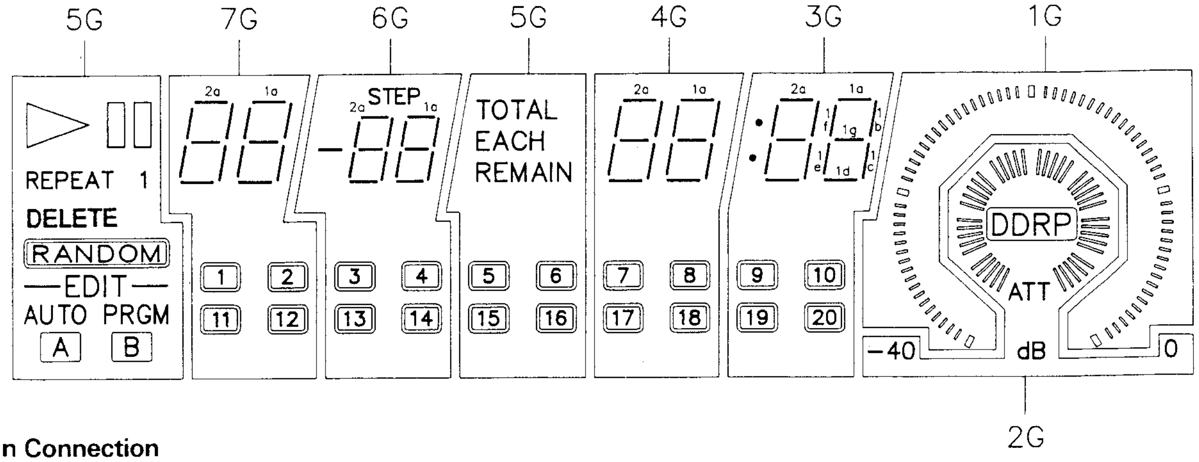
■ MN1281 (P.Q) (IC202) : RESET IC


1 V_DD
Reference Voltage (1)
comparator
Level Conversion Circuit
Output Circuit
3 OUT
comparator
Reference Voltage (2)
2 V_SS

Pin No.	Pin Name	Function
1	V_{DD}	Power supply
2	V_{SS}	Ground
3	OUT	Reset signal output : Low level is output when resetting : High level is output when cancelling the reset.

Internal Connection for the FL Display Tube

■ Grid Assignment

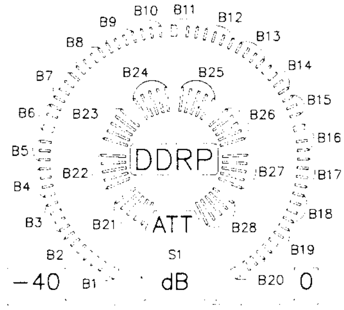

5G
7G
6G
5G
4G
3G
1G
REPEAT 1
DELETE
RANDOM
—EDIT—
AUTO PRGM
A B
2a 1a
STEP
2a 1a
TOTAL
EACH
REMAIN
2a 1a
2a 1a
1g
1d
DDRP
ATT
1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20
−40
dB
0
2G

■ Pin Connection

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
CONNECTION	F1	F1	NP	NP	P1	P2	P6	P7	P3	P5	P4	P8	P9	P13	P14	P10	P12	P11	P16	P15	P18	P17	P19	P20	NC	NC	7G	6G	5G	4G	3G	2G	1G	NP	NP	F2	F2

NOTE 1) F1, F2 ------ Filament
2) NP -------- No pin
3) NC -------- No connection
4) 1G～7G ---- Grid

■ Segment Designation

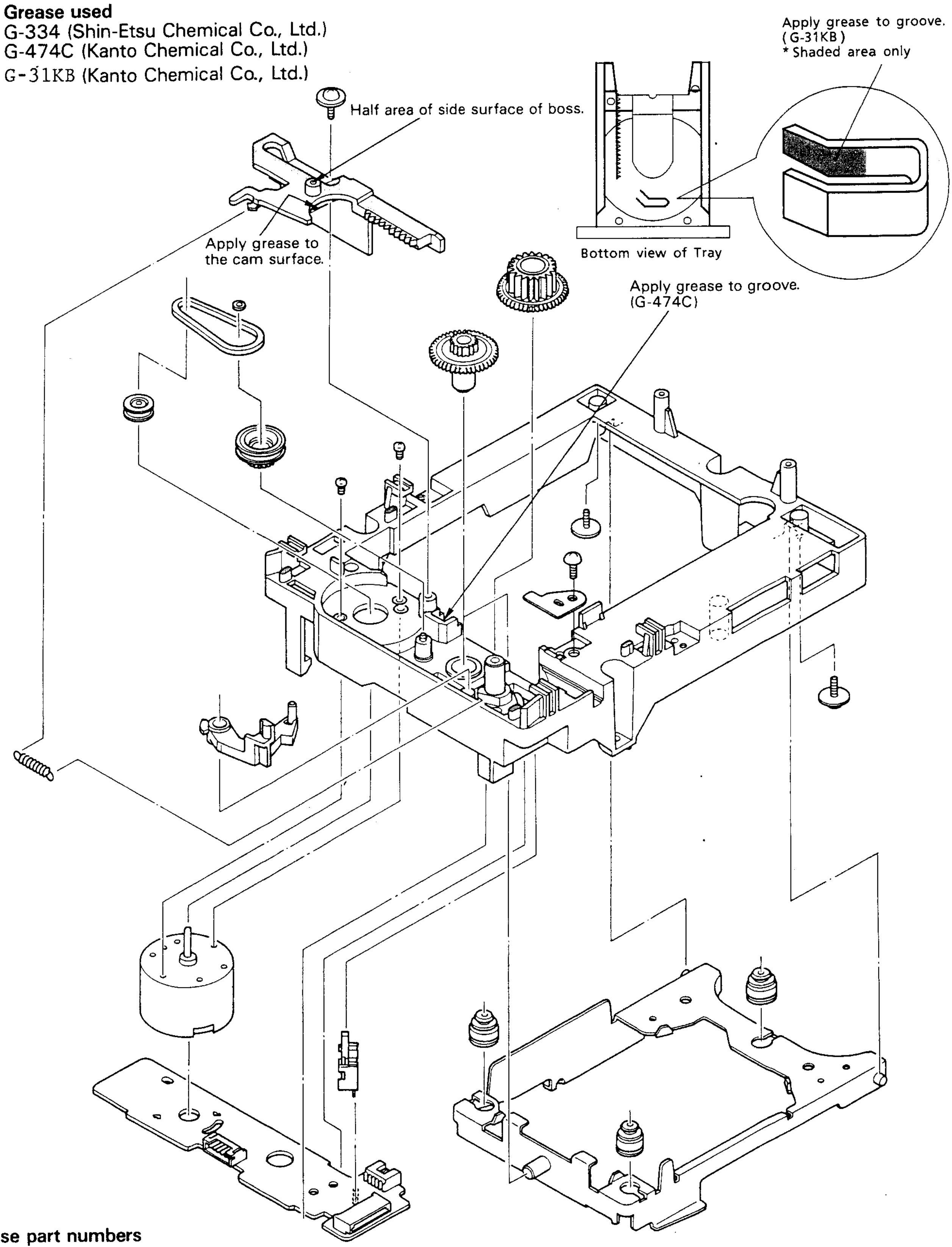

B9
B10
B11
B12
B8
B13
B7
B24
B25
B14
B15
B6
B23
B26
B16
B5
B22
DDRP
B27
B17
B4
B3
B21
ATT
B28
B18
B2
S1
B19
−40
B1
dB
B20
0

■ Anode Connection

	7G	6G	5G	4G	3G	2G	1G
P1	1a	1a	TOTAL	1a	1a	–	B20
P2	1b	1b	▷	1b	1b	–	B19
P3	1c	1c	DELETE	1c	1c	–	B18
P4	1d	1d	RANDOM	1d	1d	–	B17
P5	1e	1e	EACH	1e	1e	–	B16
P6	1f	1f	REPEAT	1f	1f	–	B15
P7	1g	1g	▯▯	1g	1g	–	B14
P8	2a	2a	— EDIT —	2a	2a	–	B13
P9	2b	2b	AUTO	2b	2b	–	B12
P10	2c	2c	PRGM	2c	2c	–	B11
P11	2d	2d	B	2d	2d	S1	B10
P12	2e	2e	REMAIN	2e	2e	DDRP	B9
P13	2f	2f	1	2f	2f	B28	B8
P14	2g	2g	A	2g	2g	B27	B7
P15	1	3	5	7	9	B26	B6
P16	2	4	6	8	10	B25	B5
P17	11	13	15	17	19	B24	B4
P18	12	14	16	18	20	B23	B3
P19	–	—	–		:	B22	B2
P20	–	STEP	–	–	–	B21	B1

Application Points for Grease

Grease used
■ G-334 (Shin-Etsu Chemical Co., Ltd.)
☐ G-474C (Kanto Chemical Co., Ltd.)
▨ G-31KB (Kanto Chemical Co., Ltd.)



Half area of side surface of boss.

Apply grease to the cam surface.

Bottom view of Tray

Apply grease to groove.
(G-31KB)
* Shaded area only

Apply grease to groove.
(G-474C)

Grease part numbers
G-334: EBS0006-009B
G-474C: EBS0006-019B
G-31KB: EBS0006-013B

Disassembly Procedures

(1) Removing the top cover

1. Remove the 4 screws holding the both sides of the top cover, and 2 screws holding the rear side of it.
2. Gently spread both sides of the top cover to the outside, lift up the rear section, and remove the top cover.

(2) Removing the tray

1. Remove the top cover.
2. Switch on the power. Press the OPEN / CLOSE switch to bring the tray forward and switch off the power.
3. Remove the screw on the tray.
4. Pull the tray toward the front.

Note: If the power does not come on due to breakdown or the like, insert a plastic screwdriver through the hole at the bottom of the front panel and turn it clockwise to bring the tray forward.

(3) Removing the mechanism assembly

1. Remove the top cover.
2. Remove the tray.
3. Remove the 2 screws Ⓐ holding the clamp assembly to remove the clamp assembly.
4. Remove the 3 screws Ⓑ holding the mechanism assembly.

(4) Removing the rear panel

1. Remove the 8 screws Ⓒ holding the rear panel.
2. Remove the rear panel.

(5) Removing the main P.C. Board (ENN-320-1)

1. Remove the top cover.
2. Remove the rear panel.
3. Remove the 4 screws Ⓓ holding the P.C.board.
4. Remove the connectors connecting with the main P.C.board.

(6) Removing the front panel assembly

1. Remove the top cover.
2. Remove the tray.
3. Remove the 2 screws Ⓔ at the bottom of the front panel.
4. Remove the connectors.
5. Release the hooks Ⓗ holding the front panel, and remove the front panel assembly.

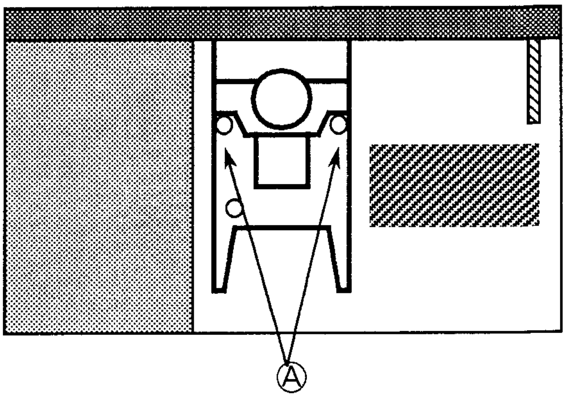


Figure 1

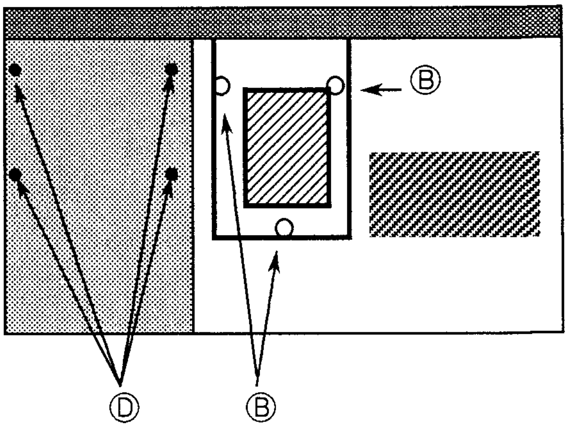


Figure 2

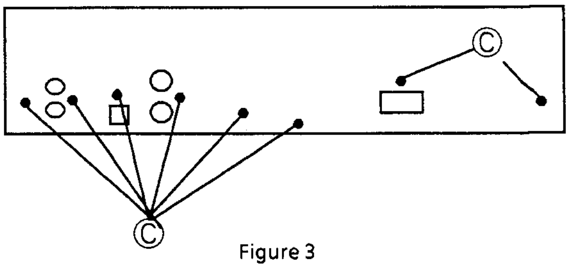


Figure 3

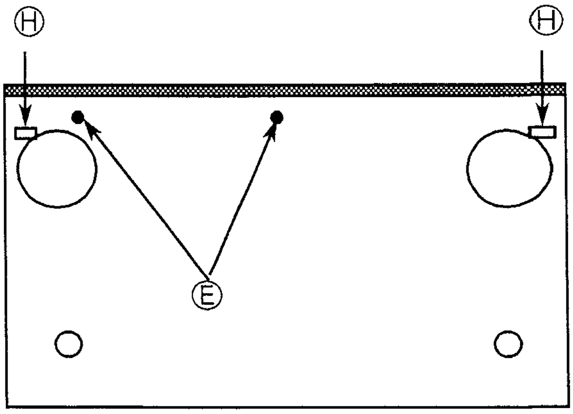


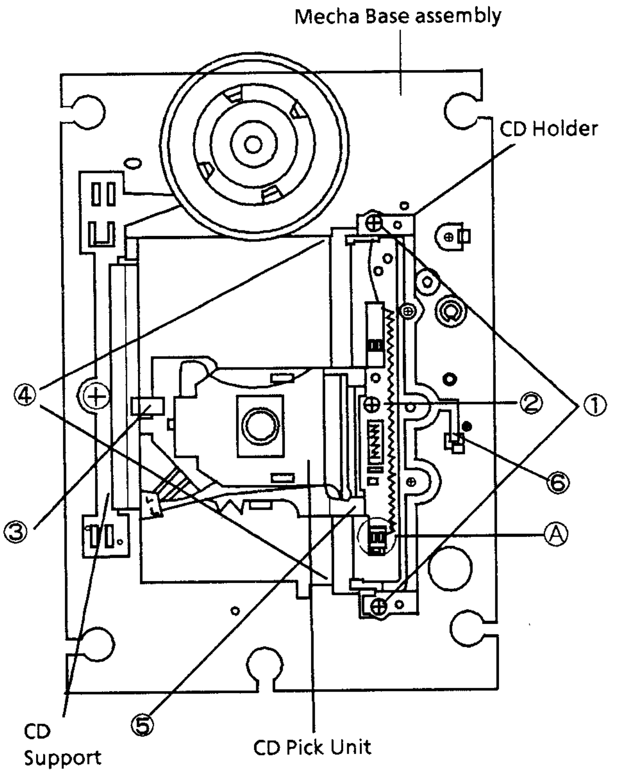
Figure 4

(7) Removing the Laser Pickup

1. Remove the top cover, tray assembly and the clamp.
2. Move the Pickup Unit from rest position to the center pushing ⑤ point with finger.
3. Remove the screw ② from the CD RACK assembly, and remove the CD RACK assembly.
4. Remove the screw① from the Mecha Base assembly.
5. Remove the CD HOLDER fastening the shaft from the Mecha Base assembly.(Release the hook ⑥)
6. Remove the CD Pick Unit with the shaft.

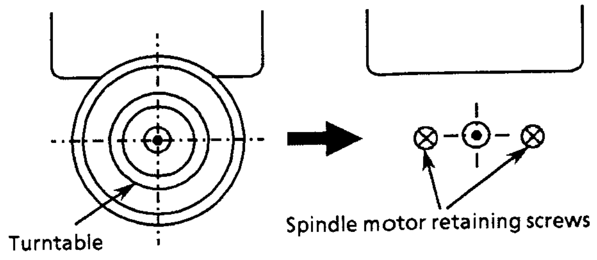
(8) Laser Pickup installation

1. Connect two wires with the connectors of APC P.C.Board.
2. While installing the ③ in the CD Support, set the shaft on the base hook④.
3. Install the CD Holder.
4. Install THE CD Rack assembly in CD Pick Unit.
   1) Fit end Ⓐ
   2) Fix screw ②.



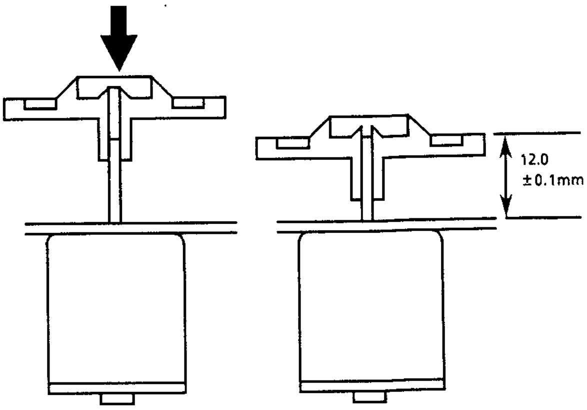
(9) Removing the spindle motor

1. Remove the Mechanism assembly.
2. Remove the turntable, and remove the two screws retaining the spindle motor.
3. Remove the screw retaining the Spindle andFeed Motor P.C. Board and unsolder it.

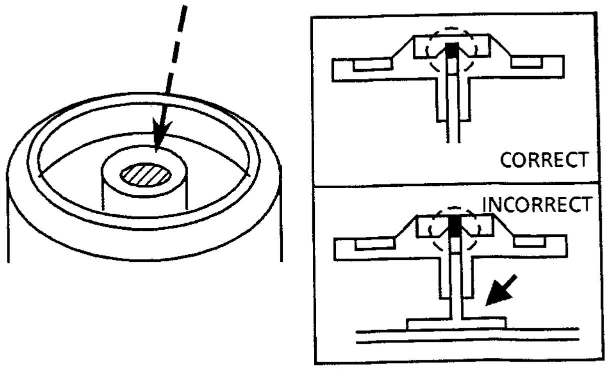


(10) Spindle motor installation

1. Tighten the 2 screws to the same torque.
2. Fasten the Spindle and Feed Motor P.C. Board with the screw and solder.
3. Install the turntable.When installing, press straight down at the center of the turntable until the distance from the surface of the mechanism base to the top of the turntable is exactly 12.0 ± 0.1mm.

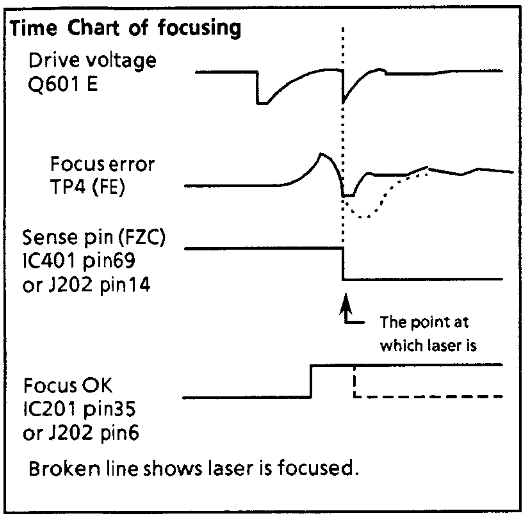


4. After insertion is complete, bond the motor shaft and turntable together (at the section marked by an arrow in the figure on the left below).

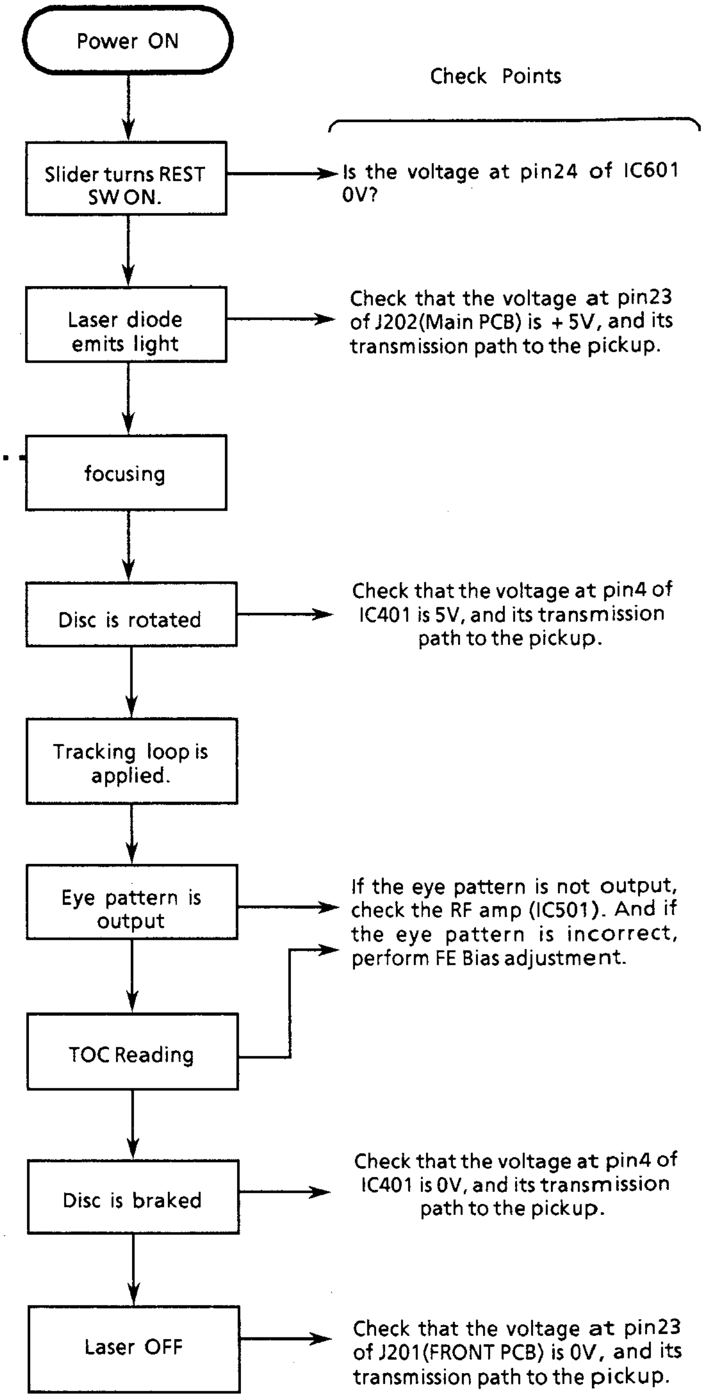


5. Use "LOCKTITE" #460 bonding agent, and apply as little as possible. Take care not to allow any excess bonding agent to get onto the turntable. Be extremely careful not to allow bonding agent to adhere to the motor bearings (the section marked by an allow in the figure on the right).

Flow of Functional Operation Until TOC is Read



Broken line shows laser is focused.


Power ON
Check Points
Slider turns REST SW ON.
Laser diode emits light
focusing
Disc is rotated
Tracking loop is applied.
Eye pattern is output
TOC Reading
Disc is braked
Laser OFF

Is the voltage at pin24 of IC601 0V?

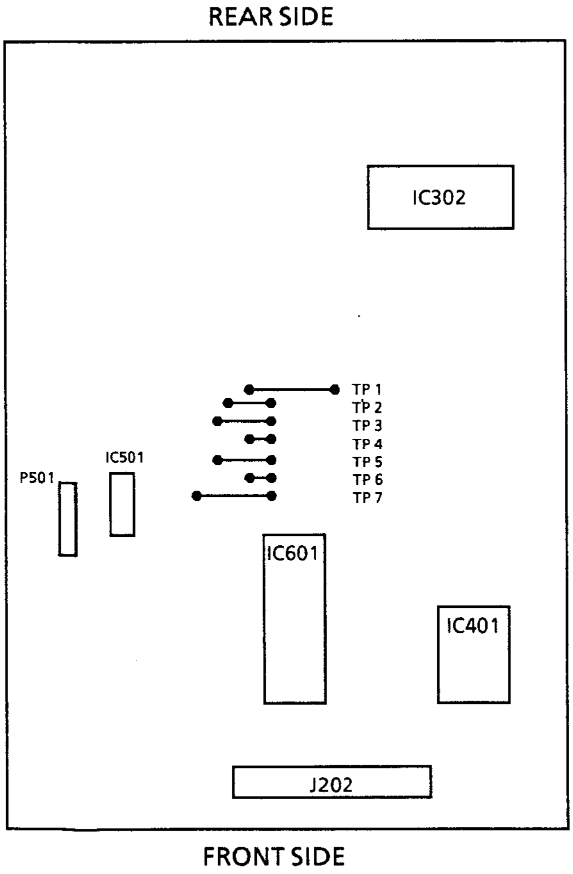
Check that the voltage at pin23 of J202(Main PCB) is + 5V, and its transmission path to the pickup.

Check that the voltage at pin4 of IC401 is 5V, and its transmission path to the pickup.

If the eye pattern is not output, check the RF amp (IC501). And if the eye pattern is incorrect, perform FE Bias adjustment.

Check that the voltage at pin4 of IC401 is 0V, and its transmission path to the pickup.

Check that the voltage at pin23 of J201(FRONT PCB) is 0V, and its transmission path to the pickup.

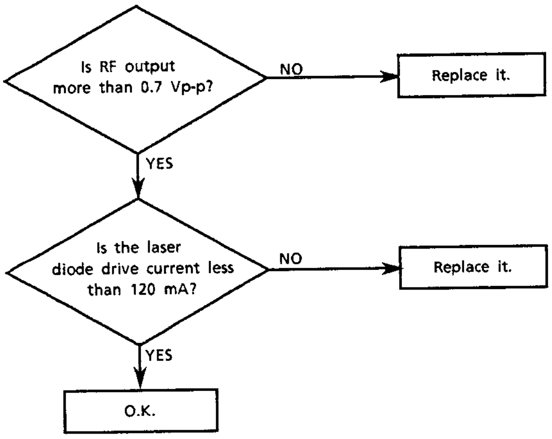

REAR SIDE
IC302
TP 1
TP 2
TP 3
TP 4
TP 5
TP 6
TP 7
IC501
P501
IC601
IC401
J202
FRONT SIDE

Maintenance of Laser Pickup

(1) Life of the laser diode

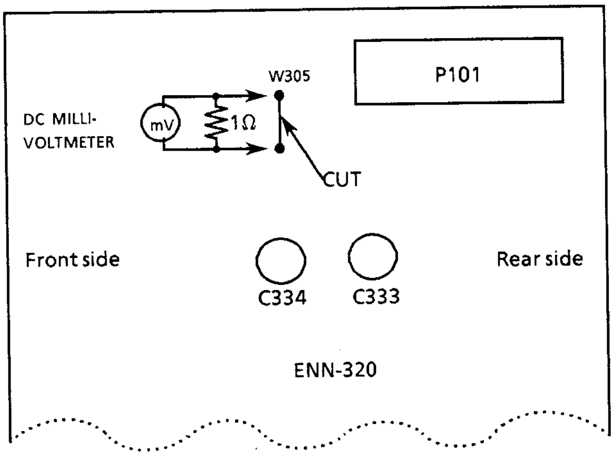
When the life of the laser diode has expired, the following symptoms will appear.

1. The level of RF output (EFM output: amplitude of eye pattern) will be low.
2. The drive current required by the laser diode will be increased.
   In such a case, check the life of the laser diode following the flowchart below


Is RF output more than 0.7 Vp-p?
NO
Replace it.
YES
Is the laser diode drive current less than 120 mA?
NO
Replace it.
YES
O.K.

(2) Measurement of laser diode drive current

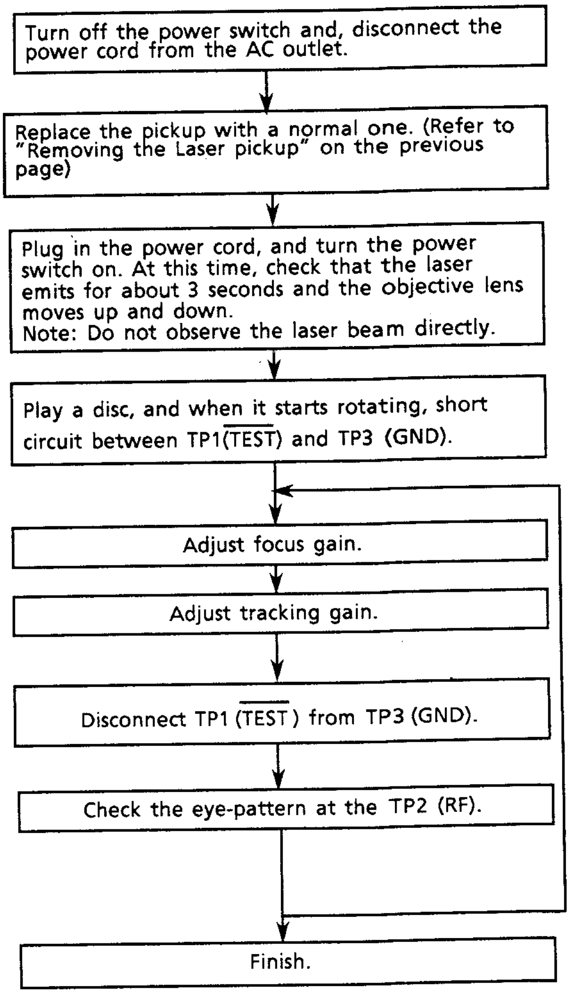
Replace the jump wire (W305) shown below with the resistor (1Ω).
Measure the voltage across the resistor with a milli-voltmeter. When the voltage is more than 120mV, it shows that the life of the laser diode has expired



(3) Semi-fixed resistor on the APC PC board

The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power. Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.
If the laser power is lower than the specified value, the laser diode is almost worn out, and the laser pickup should be replaced.
If the semi-fixed resistor is adjusted while the pickup is functioning normally, the laser pickup may be damaged due to excessive current.

Replacement of Laser Pickup



Turn off the power switch and, disconnect the power cord from the AC outlet.

Replace the pickup with a normal one. (Refer to "Removing the Laser pickup" on the previous page)

Plug in the power cord, and turn the power switch on. At this time, check that the laser emits for about 3 seconds and the objective lens moves up and down.
Note: Do not observe the laser beam directly.

Play a disc, and when it starts rotating, short circuit between TP1($\overline{\text{TEST}}$) and TP3 (GND).

Adjust focus gain.

Adjust tracking gain.

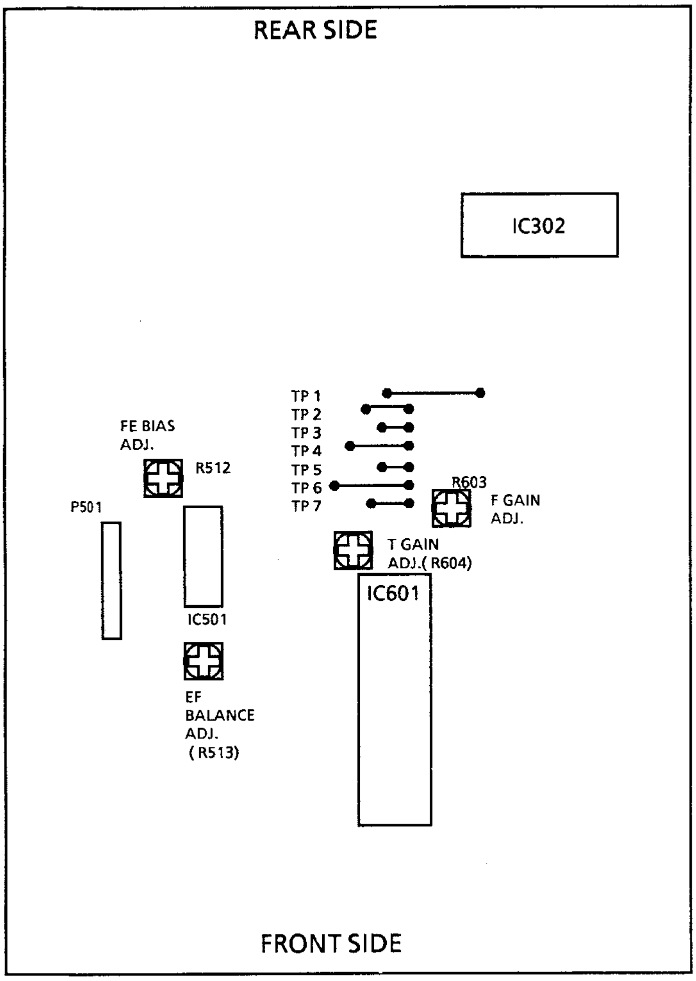
Disconnect TP1 ($\overline{\text{TEST}}$) from TP3 (GND).

Check the eye-pattern at the TP2 (RF).

Finish.

Note: Since one adjustment may affect other settings, repeat these adjustments a few times.

Adjustment Procedures


REAR SIDE
IC302
TP 1
TP 2
TP 3
TP 4
TP 5
TP 6
TP 7
FE BIAS ADJ.
R512
P501
R603
F GAIN ADJ.
T GAIN ADJ.(R604)
IC601
IC501
EF BALANCE ADJ. (R513)
FRONT SIDE

■ Adjustment instruments

Oscilloscope, Test disc (CRG-1117)

■ Adjustment Procedures

1) FE Bias check
1. Connect an oscilloscope between TP 4(FE) and TP 3(GND).
2. Adjust R512(FE bias) so that the DC voltage at TP 4 becomes 0 ± 10mV.

2) EF balance adjustment
1. Load a test disc and press the play button.
2. Short-circuit between TP 1(TEST) and TP 3(GND).
3. Adjust R513(EF balance) so that the center of the waveform at TP 6(TE) bocomes 0 ± 0.05V.

3) Gain adjustment

If the gain is out of adjustment, the symptoms below will appear.

● Gain too low

Focus gain	: Focus is not obtained and disc does not rotate.
Tracking gain	: Mechanical shock occurs easily and sound is interrupted. Or time counter display stop counting.

● Gain too high

Focus gain	: Scratches (on the disc) easily interrupt play, and noise is increased during play.
Tracking gain	: Since the follow-up ability of the pickup is too high, the pickup may oscillate and oscillating sound may output.

As described above, the focus and tracking gain adjustment are performed so as to satisfy mutually contradictory characteristics.
A simplified adjustment procedure is described below. However, since exact adjustment can not be performed prior to adjustments, note(or mark) the positions of the semi-fixed VRs.
If the positions after the simplified adjustment are only different, return the VRs to their original position.

Focus gain adjustment

1. Connect an oscilloscope between TP 4(FE) and TP 3(GND).
2. Load a test disc and press the PLAY button.
3. Adjust R603(F.GAIN ADJ.) so that the correct waveform in figure 1 is obtain.

Tracking gain adjustment

1. Connect an oscilloscope between TP 6(TE) and TP 3(GND).
2. Load a test disc and press the PLAY button.
3. Adjust R604(T.GAIN ADJ.) so that the correct waveform in figure 2 is obtain.

Focus Gain Adjustment

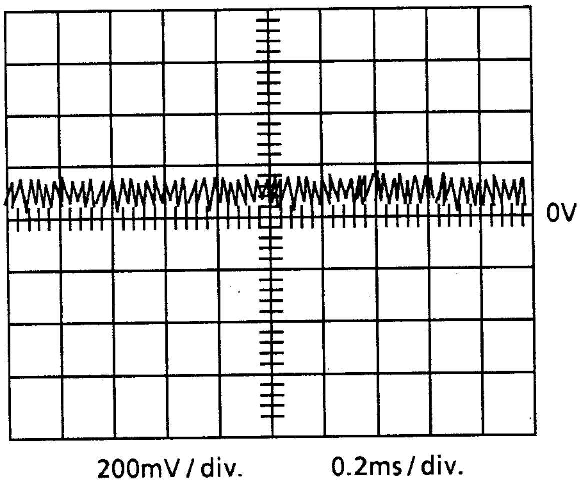


Figure. 1

Tracking Gain Adjustment

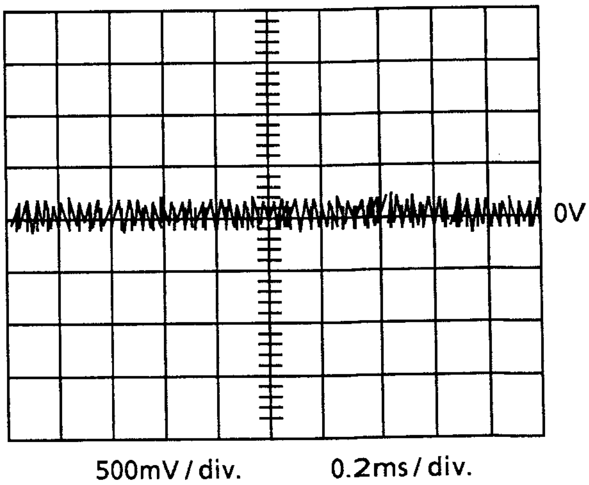
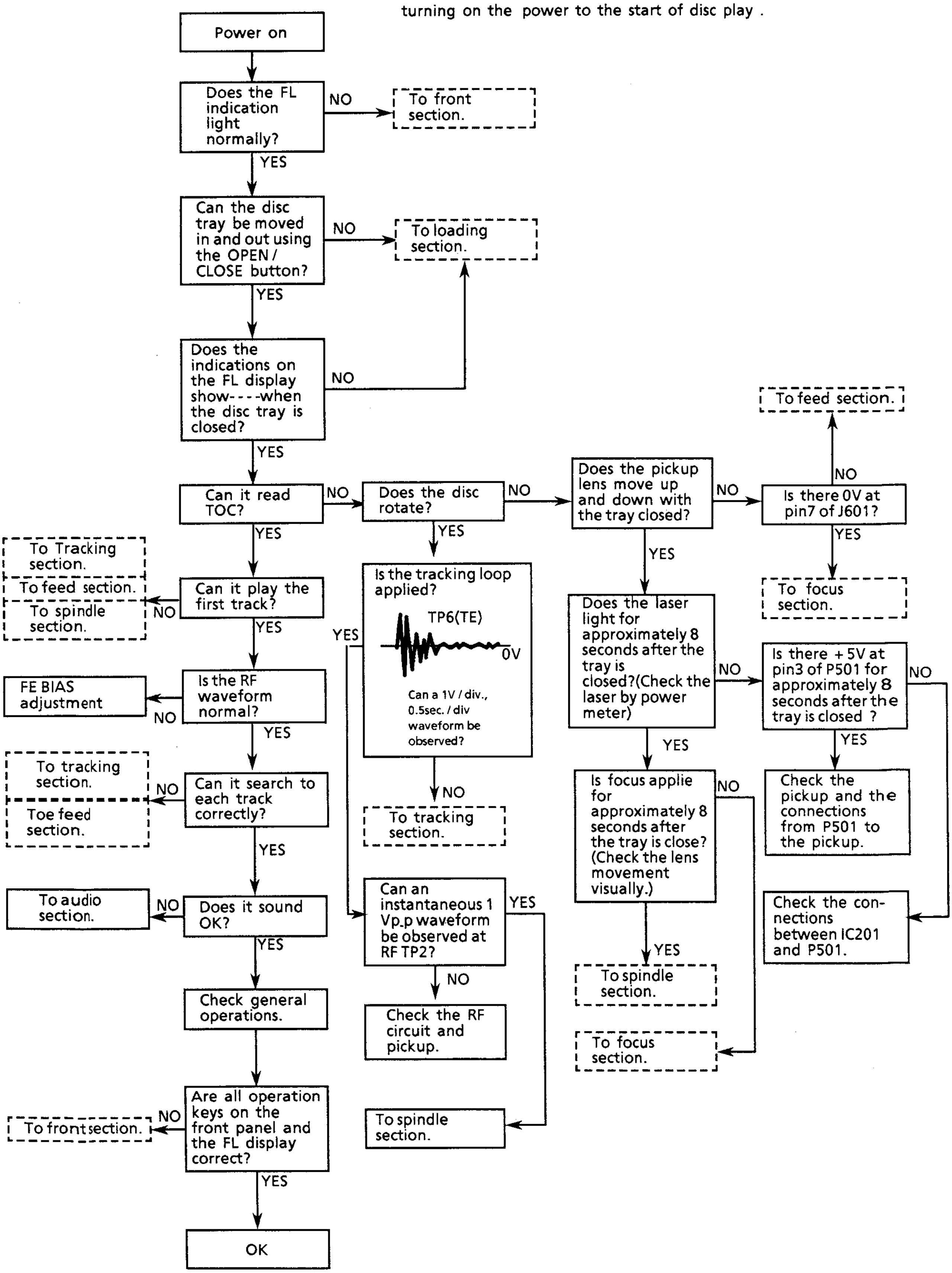


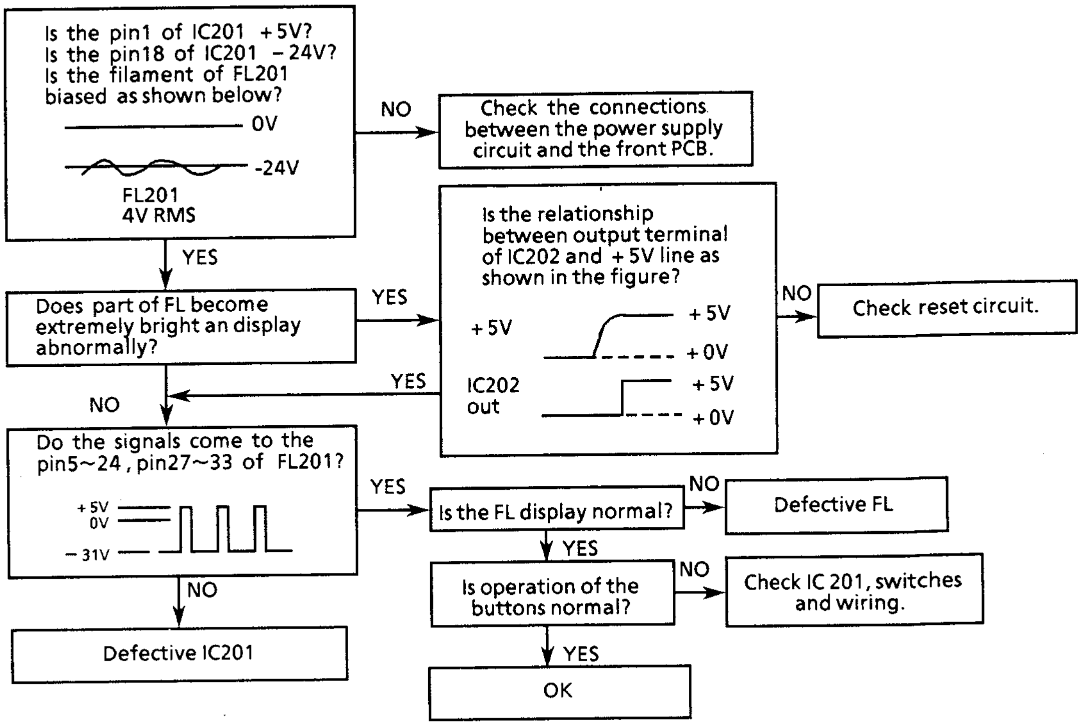
Figure. 2

Troubleshooting

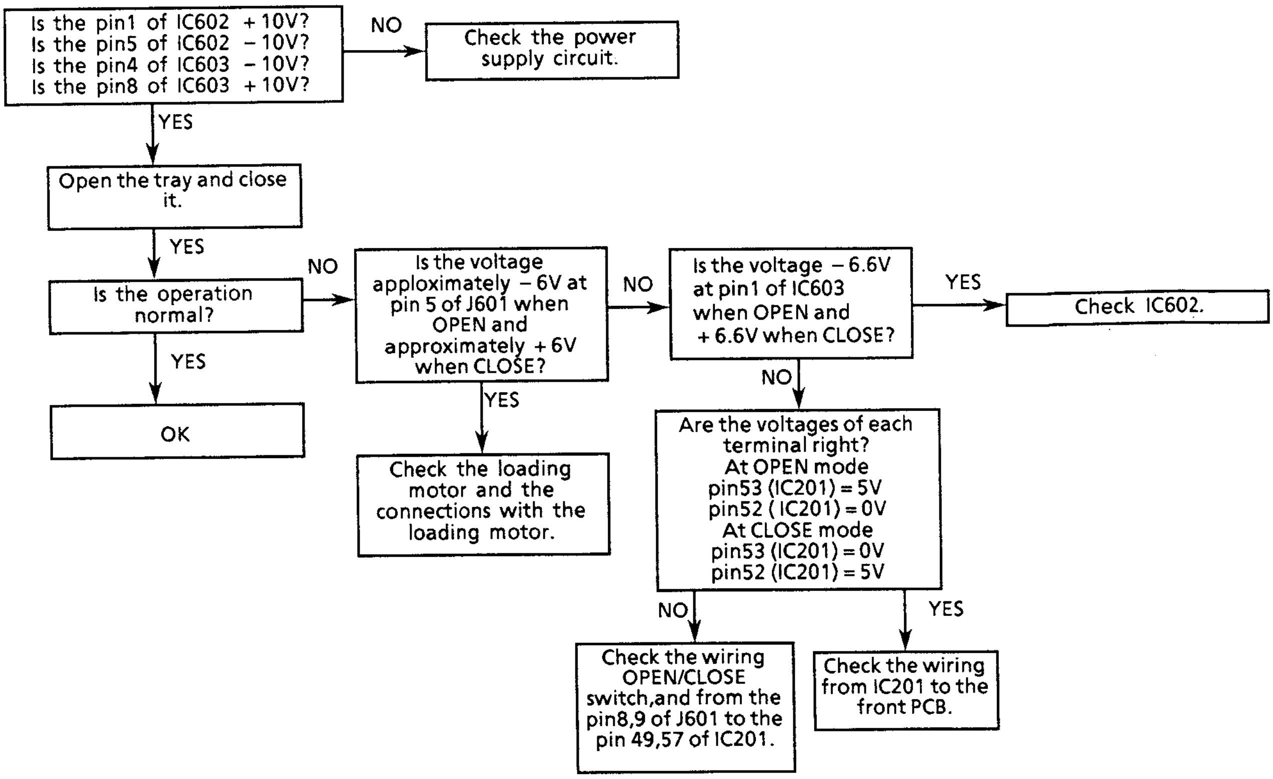
The following shows the status of the various circuits from turning on the power to the start of disc play .


Power on
Does the FL indication light normally?
NO
To front section.
YES
Can the disc tray be moved in and out using the OPEN / CLOSE button?
NO
To loading section.
YES
Does the indications on the FL display show- - - -when the disc tray is closed?
NO
YES
Can it read TOC?
NO
Does the disc rotate?
NO
Does the pickup lens move up and down with the tray closed?
NO
Is there 0V at pin7 of J601?
NO
To feed section.
YES
To focus section.
YES
Does the laser light for approximately 8 seconds after the tray is closed?(Check the laser by power meter)
NO
Is there +5V at pin3 of P501 for approximately 8 seconds after the tray is closed ?
NO
Check the connections between IC201 and P501.
YES
Check the pickup and the connections from P501 to the pickup.
YES
Is focus applie for approximately 8 seconds after the tray is close? (Check the lens movement visually.)
NO
To focus section.
YES
To spindle section.
YES
Is the tracking loop applied?
TP6(TE)
0V
Can a 1V / div., 0.5sec. / div waveform be observed?
NO
To tracking section.
YES
Can an instantaneous 1 Vp.p waveform be observed at RF TP2?
YES
To spindle section.
NO
Check the RF circuit and pickup.
YES
Can it play the first track?
NO
To Tracking section.
To feed section.
To spindle section.
YES
Is the RF waveform normal?
NO
FE BIAS adjustment
YES
Can it search to each track correctly?
NO
To tracking section.
Toe feed section.
YES
Does it sound OK?
NO
To audio section.
YES
Check general operations.
Are all operation keys on the front panel and the FL display correct?
NO
To front section.
YES
OK

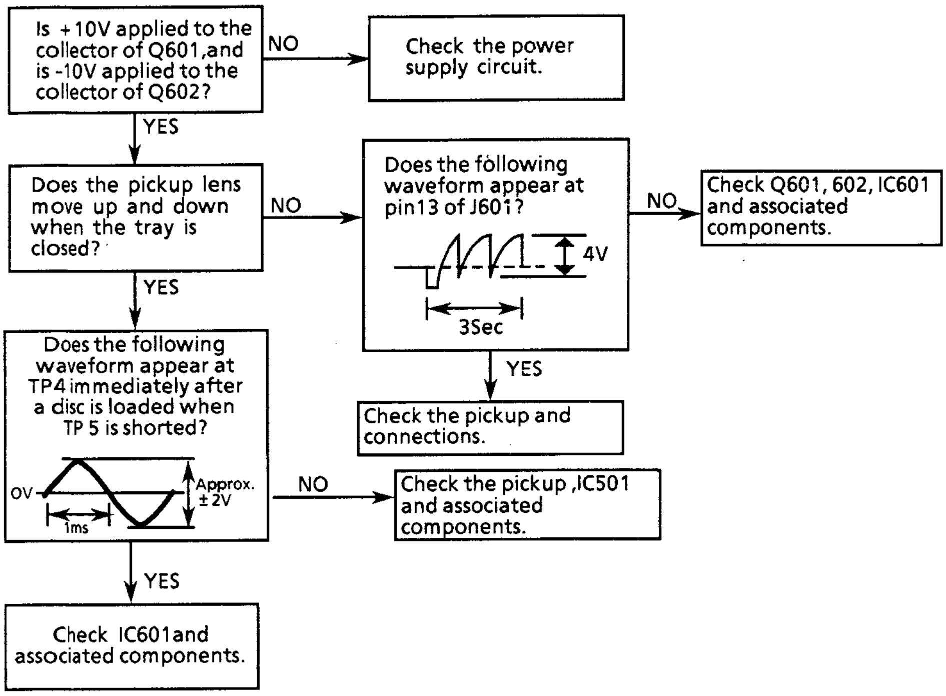
Front Section


Is the pin1 of IC201 +5V?
Is the pin18 of IC201 −24V?
Is the filament of FL201 biased as shown below?
0V
-24V
FL201
4V RMS
NO
Check the connections between the power supply circuit and the front PCB.
YES
Does part of FL become extremely bright an display abnormally?
YES
Is the relationship between output terminal of IC202 and +5V line as shown in the figure?
+5V
+5V
+0V
IC202 out
+5V
+0V
NO
Check reset circuit.
YES
NO
Do the signals come to the pin5~24, pin27~33 of FL201?
+5V
0V
−31V
YES
Is the FL display normal?
NO
Defective FL
YES
Is operation of the buttons normal?
NO
Check IC 201, switches and wiring.
YES
OK
NO
Defective IC201

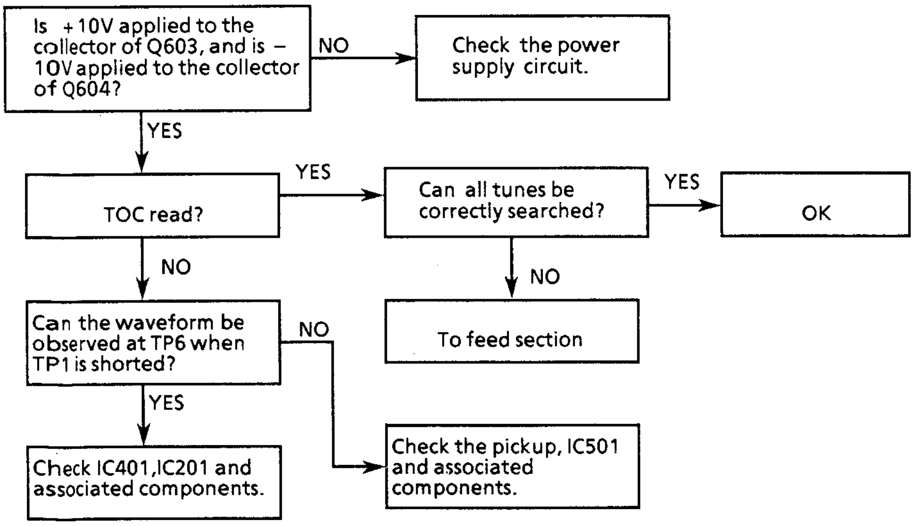
Loading section


Is the pin1 of IC602 +10V?
Is the pin5 of IC602 −10V?
Is the pin4 of IC603 −10V?
Is the pin8 of IC603 +10V?
NO
Check the power supply circuit.
YES
Open the tray and close it.
YES
Is the operation normal?
YES
OK
NO
Is the voltage apploximately −6V at pin 5 of J601 when OPEN and approximately +6V when CLOSE?
YES
Check the loading motor and the connections with the loading motor.
NO
Is the voltage −6.6V at pin1 of IC603 when OPEN and +6.6V when CLOSE?
YES
Check IC602.
NO
Are the voltages of each terminal right?
At OPEN mode
pin53 (IC201) = 5V
pin52 (IC201) = 0V
At CLOSE mode
pin53 (IC201) = 0V
pin52 (IC201) = 5V
NO
Check the wiring OPEN/CLOSE switch, and from the pin8,9 of J601 to the pin 49,57 of IC201.
YES
Check the wiring from IC201 to the front PCB.

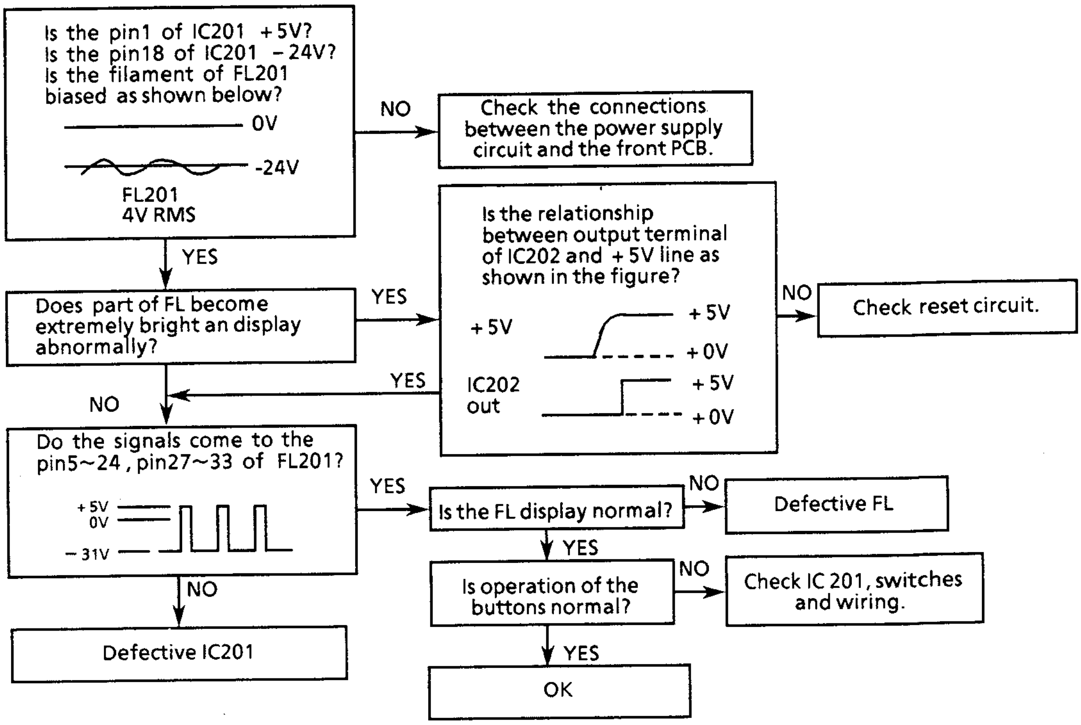
Focus section


Is +10V applied to the collector of Q601,and is -10V applied to the collector of Q602?
NO
Check the power supply circuit.
YES
Does the pickup lens move up and down when the tray is closed?
NO
Does the following waveform appear at pin13 of J601?
4V
3Sec
NO
Check Q601, 602, IC601 and associated components.
YES
Check the pickup and connections.
YES
Does the following waveform appear at TP4 immediately after a disc is loaded when TP 5 is shorted?
OV
Approx. ±2V
1ms
NO
Check the pickup ,IC501 and associated components.
YES
Check IC601and associated components.

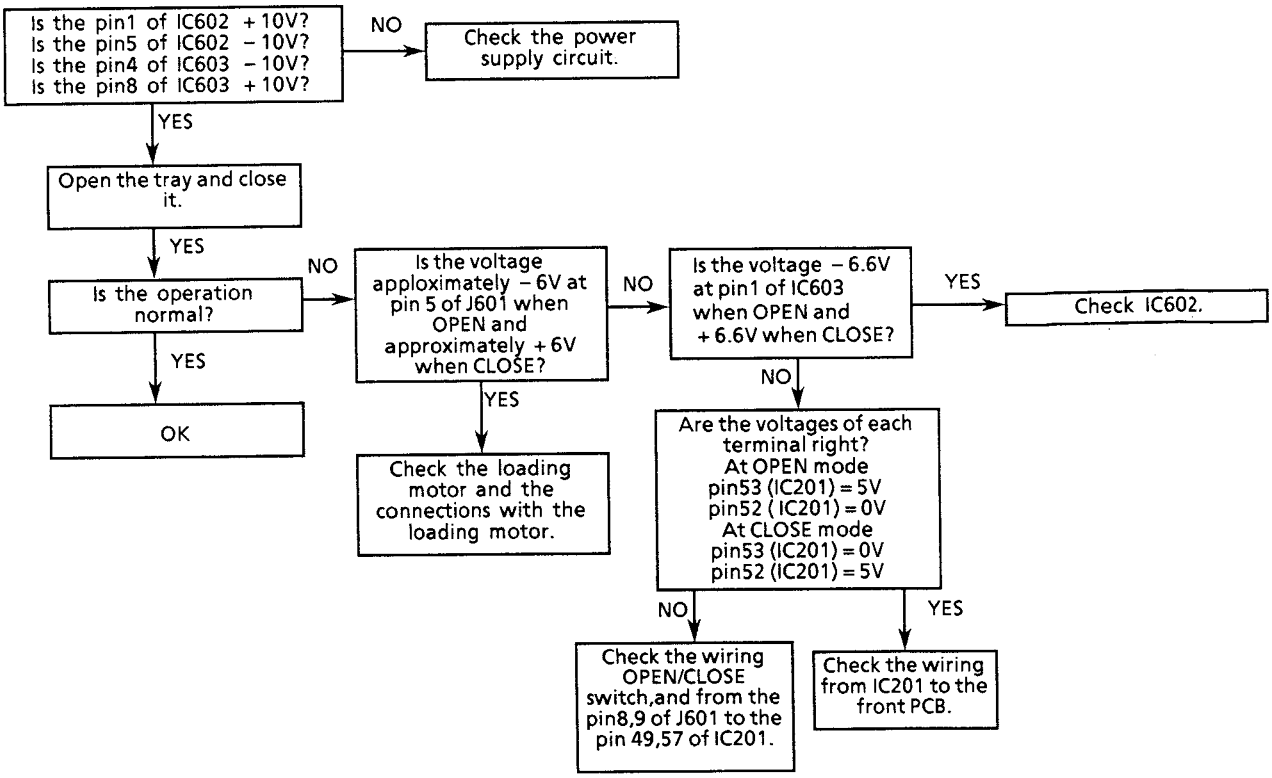
Tracking section


Is +10V applied to the collector of Q603, and is −10V applied to the collector of Q604?
NO
Check the power supply circuit.
YES
TOC read?
YES
Can all tunes be correctly searched?
YES
OK
NO
To feed section
NO
Can the waveform be observed at TP6 when TP1 is shorted?
NO
Check the pickup, IC501 and associated components.
YES
Check IC401,IC201 and associated components.

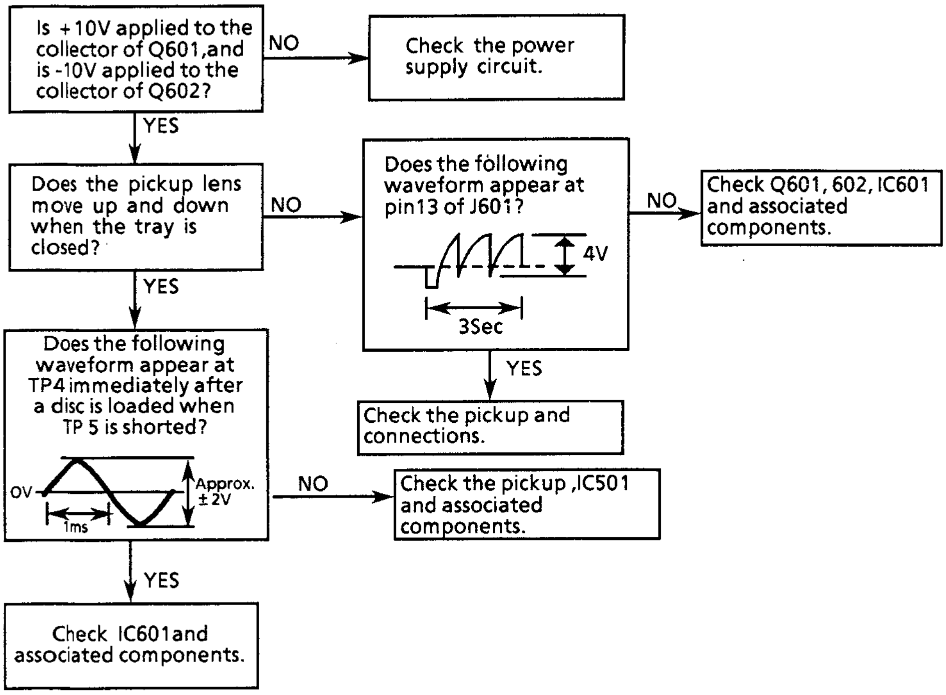
Front Section


Is the pin1 of IC201 +5V?
Is the pin18 of IC201 -24V?
Is the filament of FL201 biased as shown below?
0V
-24V
FL201
4V RMS
NO
Check the connections between the power supply circuit and the front PCB.
YES
Does part of FL become extremely bright an display abnormally?
YES
Is the relationship between output terminal of IC202 and +5V line as shown in the figure?
+5V
+5V
+0V
IC202 out
+5V
+0V
NO
Check reset circuit.
YES
NO
Do the signals come to the pin5~24, pin27~33 of FL201?
+5V
0V
-31V
YES
Is the FL display normal?
NO
Defective FL
YES
Is operation of the buttons normal?
NO
Check IC 201, switches and wiring.
YES
OK
NO
Defective IC201

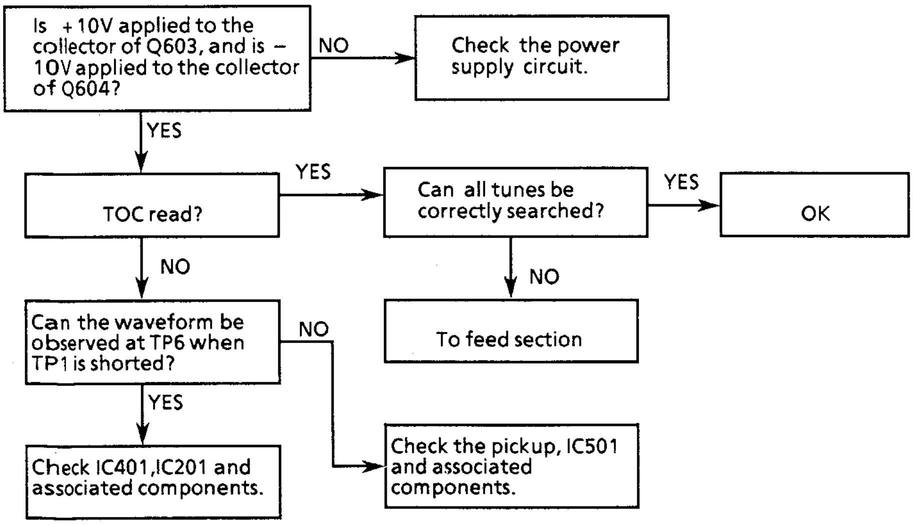
Loading section


Is the pin1 of IC602 +10V?
Is the pin5 of IC602 -10V?
Is the pin4 of IC603 -10V?
Is the pin8 of IC603 +10V?
NO
Check the power supply circuit.
YES
Open the tray and close it.
YES
Is the operation normal?
NO
Is the voltage apploximately -6V at pin 5 of J601 when OPEN and approximately +6V when CLOSE?
NO
Is the voltage -6.6V at pin1 of IC603 when OPEN and +6.6V when CLOSE?
YES
Check IC602.
YES
OK
YES
Check the loading motor and the connections with the loading motor.
NO
Are the voltages of each terminal right?
At OPEN mode
pin53 (IC201) = 5V
pin52 (IC201) = 0V
At CLOSE mode
pin53 (IC201) = 0V
pin52 (IC201) = 5V
NO
Check the wiring OPEN/CLOSE switch,and from the pin8,9 of J601 to the pin 49,57 of IC201.
YES
Check the wiring from IC201 to the front PCB.

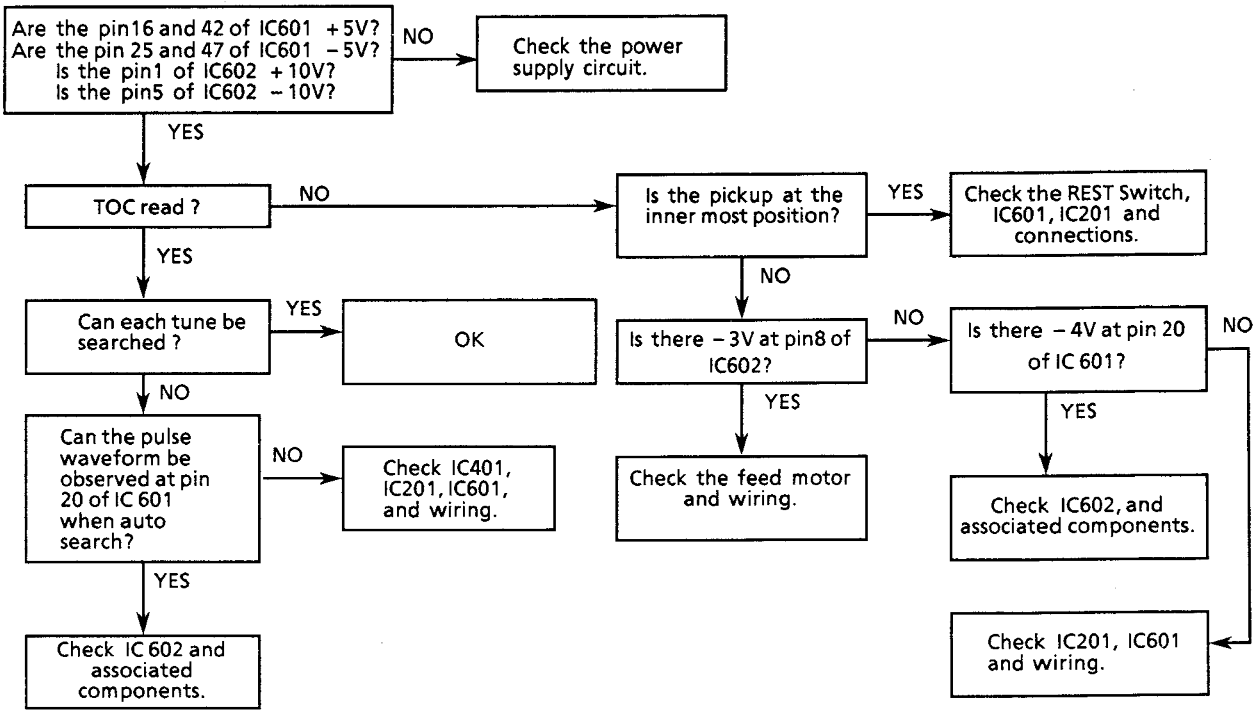
Focus section


Is +10V applied to the collector of Q601,and is -10V applied to the collector of Q602?
NO
Check the power supply circuit.
YES
Does the pickup lens move up and down when the tray is closed?
NO
Does the following waveform appear at pin13 of J601?
4V
3Sec
NO
Check Q601, 602, IC601 and associated components.
YES
Check the pickup and connections.
YES
Does the following waveform appear at TP4 immediately after a disc is loaded when TP 5 is shorted?
OV
Approx. ±2V
1ms
NO
Check the pickup ,IC501 and associated components.
YES
Check IC601and associated components.

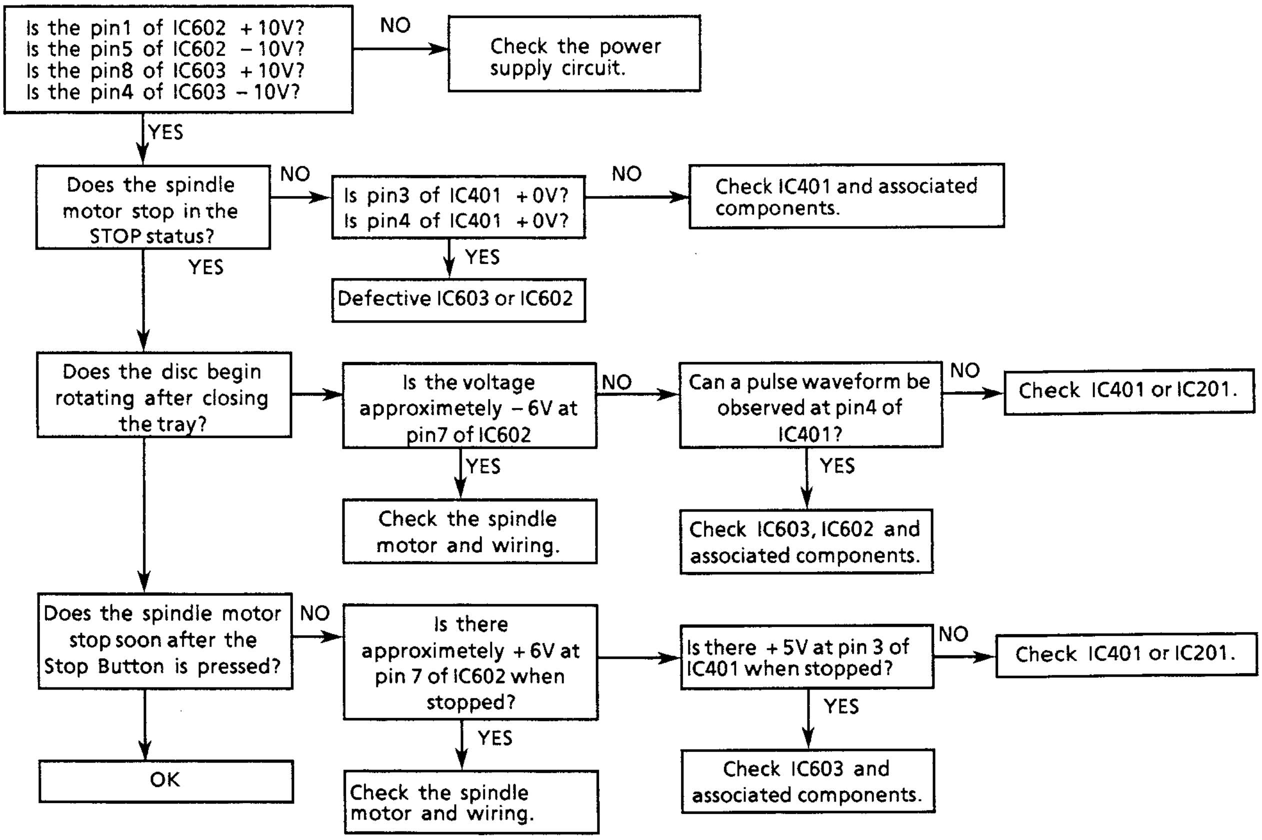
Tracking section


Is +10V applied to the collector of Q603, and is −10V applied to the collector of Q604?
NO
Check the power supply circuit.
YES
TOC read?
YES
Can all tunes be correctly searched?
YES
OK
NO
To feed section
NO
Can the waveform be observed at TP6 when TP1 is shorted?
NO
Check the pickup, IC501 and associated components.
YES
Check IC401,IC201 and associated components.

Feed section


Are the pin16 and 42 of IC601 +5V? Are the pin 25 and 47 of IC601 −5V? Is the pin1 of IC602 +10V? Is the pin5 of IC602 −10V?
NO
Check the power supply circuit.
YES
TOC read ?
NO
Is the pickup at the inner most position?
YES
Check the REST Switch, IC601, IC201 and connections.
YES
NO
Can each tune be searched ?
YES
OK
NO
Is there −3V at pin8 of IC602?
NO
Is there −4V at pin 20 of IC 601?
NO
NO
Can the pulse waveform be observed at pin 20 of IC 601 when auto search?
NO
Check IC401, IC201, IC601, and wiring.
YES
Check the feed motor and wiring.
YES
Check IC602, and associated components.
YES
Check IC 602 and associated components.
Check IC201, IC601 and wiring.

Spindle section


Is the pin1 of IC602 +10V? Is the pin5 of IC602 −10V? Is the pin8 of IC603 +10V? Is the pin4 of IC603 −10V?
NO
Check the power supply circuit.
YES
Does the spindle motor stop in the STOP status?
NO
Is pin3 of IC401 +0V? Is pin4 of IC401 +0V?
NO
Check IC401 and associated components.
YES
YES
Defective IC603 or IC602
Does the disc begin rotating after closing the tray?
Is the voltage approximetely −6V at pin7 of IC602
NO
Can a pulse waveform be observed at pin4 of IC401?
NO
Check IC401 or IC201.
YES
Check the spindle motor and wiring.
YES
Check IC603, IC602 and associated components.
Does the spindle motor stop soon after the Stop Button is pressed?
NO
Is there approximetely +6V at pin 7 of IC602 when stopped?
Is there +5V at pin 3 of IC401 when stopped?
NO
Check IC401 or IC201.
YES
OK
YES
Check the spindle motor and wiring.
Check IC603 and associated components.

PARTS LIST

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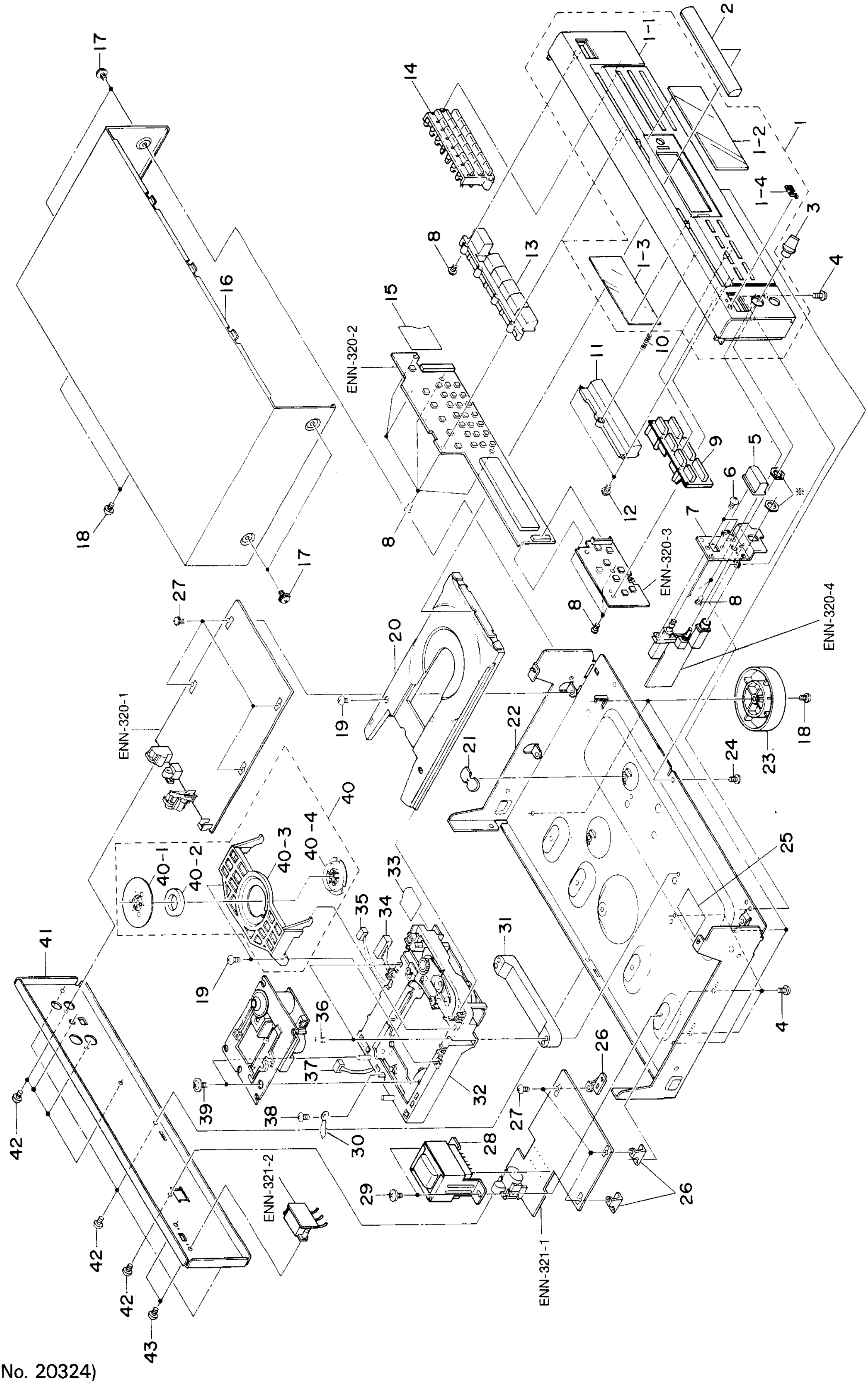
- ■ENN-321 ☐ Power Supply PC Board Ass'y 2-11

Accessories List 2-13

Packing Materials and Part Numbers 2-14

General Exploded View and Parts List


1
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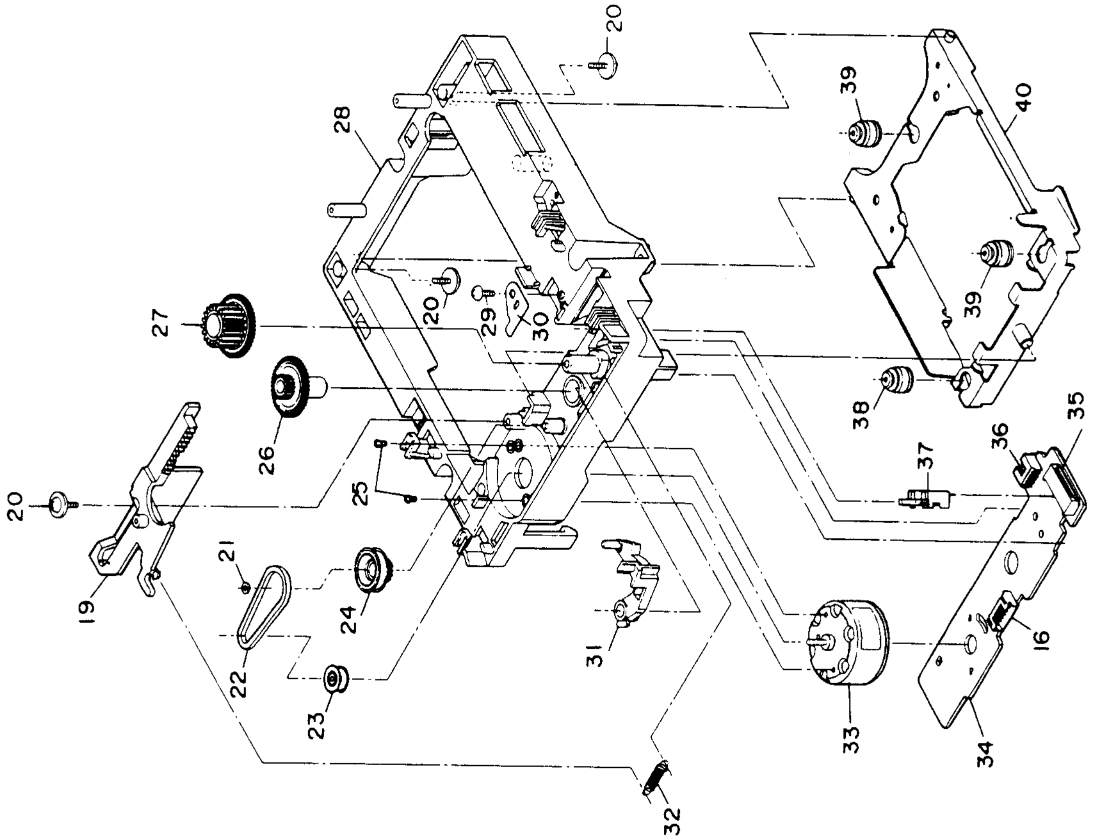
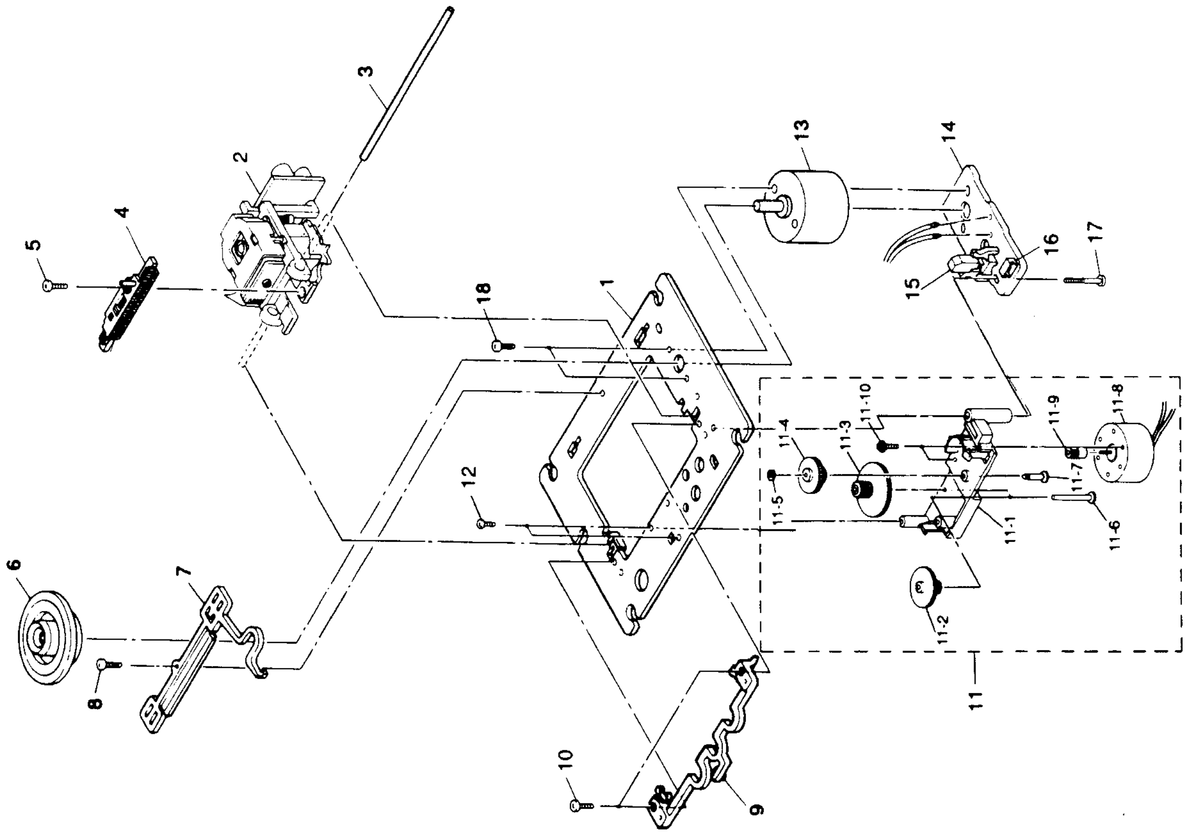
40-1
40-2
40-3
40-4
41
42
43
ENN-320-1
ENN-320-2
ENN-320-3
ENN-320-4
ENN-321-1
ENN-321-2
※

※ mark indicates attached part.

CD Mechanism Ass'y and Parts List





■Parts List

Item	Part Number	Part Name	Q'ty	Description	Areas
1	E26487-003	Mechanism Base	1		
2	OPTIMA-5S	Pick up Ass'y	1		
3	E74930-003	Shaft	1		
4	E306282-001	Rack Ass'y	1		
5	SPSH2050M	Screw	1		
6	E406064-002	Turn Table Ass'y	1		
7	E306275-003	Support	1		
8	SDST2005Z	Screw	1		
9	E306277-001	Holder	1		
10	SDST2004Z	Screw	2		
11	SE10351-11	Gear Ass'y	1		
11-1	E306276-001	Gear Base	1		
11-2	E75444-001	Gear	1		
11-3	E75443-001	Gear	1		
11-4	E75445-001	Gear	1		
11-5	WDM163550	Slit Washer	1		
11-6	E75494-003	Shaft	2		
11-7	E75494-002	Shaft	1		
11-8	HKN-3A6RDNV	Feed Motor	1		
11-9	E75493-001	Pinion Gear	1		
11-10	LPSH1735Z	Screw	2		
12	E72713-001	Screw	2		
13	E74539-001B	Spindle Motor	1		
14	E12114-005(S)	Circuit Board	1		
15	ESB1100-005	Leaf Switch	1	S001	
16	EMV5109-006B	6P Plug Ass'y	2	P011	
17	E75832-001	Screw	1		
18	SDSP2003N	Screw	2		
19	E306834-001	Cam	1		
20	E65923-003	Screw	3		
21	E72024-001	Speed Nut	1		
22	E75950-002	Belt	1		
23	E75984-001	Motor Pulley	1		
24	E75985-001	Gear (1)	1		
25	SPSK2640Z	Screw	2		
26	E75986-002	Gear (2)	1		
27	E75987-001	Gear (3)	1		
28	E12288-002	Loading Base	1		
29	SBSF3008Z	Screw	1		
30	E75988-001	Plate	1		
31	E306833-001	Lever	1		
32	E75989-001	Spring	1		
33	MMN-6F1LB8Q	Loading Motor	1		
34	EMW10060-002(S)	Circuit Board	1		
35	EMV7123-013R	Connector	1	13Pin	
36	EMV5109-004B	Plug Ass'y	1	4Pin	
37	ESS1200-002	Switch	1		
38	E75609-002	Insulator	1		
39	E75609-001	Insulator	2		
40	E307087-001	Elevator Base Ass'y	1		

■ Parts List

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	EFP-XLZ451TNE(S	Front Panel Ass'y	1		
	1-1	FSJC1001-001SS	Front Panel	1		
	1-2	E307147-007SS	Window Screen	1		
	1-3	E406285-001SS	FL Screen	1		
	1-4	E72968-001	JVC Mark	1		
	2	E307156-001SS	Fitting	1		
	3	E74179-004	Knob	1		
	4	SBSG3006Z	Screw	4		
	5	E406283-001SS	Power Button	1		
	6	SBST3006Z	Screw	2		
	7	FSKL4001-001SS	Headphone Bracket	1		
	8	SDSF2608Z	Screw	10		
	9	E307155-001SS	Push Button	1	Random	
	10	E406333-001SS	Spring	1		
	11	E307149-001SS	Button	1	Open / Close	
	12	E72405-001	Special Screw	2		
	13	E307151-001SS	Play Button	1		
	14	FSXP2001-001SS	Push Button	1	21Key	
	15	EWR1RE-25TT	Flat Cord	1	25Pin	
	16	E206906-001	Metal Cover	1		
	17	E406308-001	Special Screw	4		
	18	SBST3008M	Screw	6		
	19	SBSF3008M	Screw	3		
	20	E12289-221SS	Tray	1		
	21	E74767-101	Spacer	1		
	22	E102355-002SS	Chassis Base	1		
	23	FSYH4001-00ASS	Foot Ass'y	4		
	24	SDSF3008M	Screw	1		
	25	E406507-001	Caution Label	1		Except J
	26	E68587-004	Circuit Board Bracket	3		
	27	SBSG3008CC	Screw	7		
⚠	28	ETP1000-70JAJ	Power Transformer	1		J , C
⚠		ETP1000-70LAJ	Power Transformer	1		U
⚠		ETP1000-70EAJ	Power Transformer	1		EN , EF , G
	29	E65389-002	Special Screw	2		
	30	E72018-001	Wire Clamp	1		
	31	E307158-001SS	Stand	1		
	32	—	CD Mechanism Unit Ass'y	1	See page 2-5	
	33	EWR613E-10TTJ2	Socket Wire Ass'y	1	13Pin	
	34	EWS25A-B102	Socket Wire Ass'y	1	10Pin	
	35	EWS254-B103	Socket Wire Ass'y	1	4Pin	
	36	SBST3025Z	Screw	2		
	37	EWS256-B102	Socket Wire Ass'y	1	6Pin	
	38	SBST3008Z	Screw	1		
	39	E75871-003	Special Screw	2		
	40	E306837-001	Clamper Base Ass'y	1		
	40-1	E306836-003	Yoke	1		
	40-2	E74897-002	Magnet	1		
	40-3	E26756-001	Clamper Base	1		
	40-4	E306835-001	Clamper	1		
	41	E207326-002SS	Rear Panel	1		Except J , U
		E207326-003SS	Rear Panel	1		U
		E207326-009SS	Rear Panel	1		J
	–	E307853-021	Rating Label	1		C
	–	E307853-022	Rating Label	1	Made in Singapore	U
	–	E307853-023	Rating Label	1		U
	–	E307853-024	Rating Label	1		EN , EF
	–	E307853-026F	Rating Label	1		G
	42	E73273-006	Special Screw	8		
	43	SBSF2608M	Screw	2		U

⚠: Safety Parts

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	–	E61029-005	Number Label	1		J
	–	E70891-001	Class 1 Label	1		Except J , C
	–	E45858-002	CSA Label	1		C
	–	E70027-001	Approval Label	1		EN
	–	E70419-002F	F. Mark Label	1		G
	–	QZL1031-101	SEV Label	1		EF
	–	QZL1001-001	UL Label	1		J

⚠: Safety Parts

The Marks Designated Areas

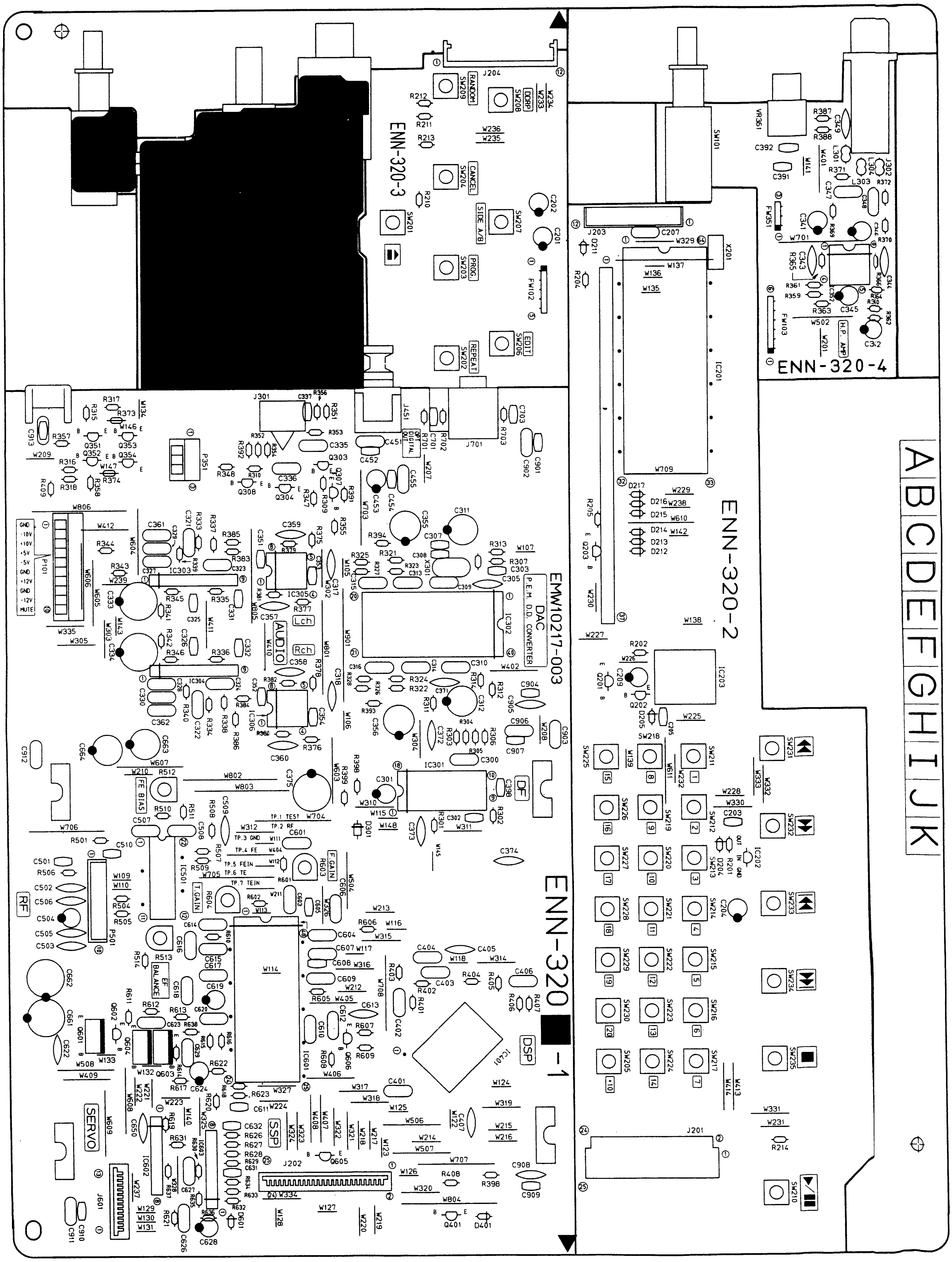
J……………………the U.S.A.
C……………………Canada
G……………………Germany
EN…………………Scandinavia

EF…………………Continental Europe
U……………………Universal Type
No mark indicates all areas.

Printed Circuit Board Ass'y and Parts List

■ENN-320☐ CD PC Board Ass'y

Note : ENN-320 ☐ varies according to the areas employed. See note (1) when placing an order.


ENN-320-3
ENN-320-2
ENN-320-4
ENN-320■-1
EMW10217-003
DAC
P.E.M. D.D. CONVERTER
AUDIO
Lch
Rch
DSP
DF
SSP
SERVO
RF
FE BIAS
F.GAIN
T.GAIN
EF BALANCE
RANDOM
DORP
CANCEL
SIDE A/B
PROG.
EDIT
REPEAT
H.P. AMP
DIGITAL OUT
GND
-10V
+10V
+5V
-5V
GND
+12V
GND
-12V
MUTE
J201
J202
J203
J204
J301
J451
J601
J701
IC201
IC202
IC203
IC301
IC302
IC303
IC304
IC305
IC306
IC401
IC501
IC601
IC602
X201
X301
A
B
C
D
E
F
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H
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K

Note (1)

PC Board Ass'y	Designated Areas
ENN-320 C	Canada
ENN-320 D	the U.S.A.
ENN-320 E	Continental Europe , Scandinavia
ENN-320 F	Universal Type
ENN-320 G	Germany

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q201	DTA114YS	SILICON ROHM	
	Q202	DTC114YS	SILICON ROHM	
	Q203	2SC1740S(R,S)	SILICON ROHM	
	Q303	2SC3068	SILICON SANYO	
	Q304	2SC3068	SILICON SANYO	
	Q307	2SC3068	SILICON SANYO	
	Q308	2SC3068	SILICON SANYO	
	Q351	2SD1302(S,T)	SILICON MATSUSHITA	
	Q352	2SD1302(S,T)	SILICON MATSUSHITA	
	Q401	DTA114YS	SILICON ROHM	
	Q601	2SD2037(E,F)	SILICON ROHM	
	Q602	2SA934(Q,R)	SILICON ROHM	
	Q603	2SD2037(E,F)	SILICON ROHM	
	Q604	2SB1357(E,F)	SILICON ROHM	
	Q605	DTC144ES	SILICON ROHM	
	Q606	2SC1740S(R,S)	SILICON ROHM	

⚠ : SAFETY PARTS

I. C. s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC201	MN171202JPJ1	I.C. MATSUSHITA	
	IC202	MN1281(P,Q)	I.C. MATSUSHITA	
	IC203	SPS-420-1	I.C. SANYO	
	IC301	SM5840DP	I.C. KANEMATSU	
	IC302	JCE4501	I.C. MATSUSHITA	
	IC303	UPC4570HA	I.C. NEC	
	IC304	UPC4570HA	I.C. NEC	
	IC305	UPC4570C	I.C. NEC	
	IC306	UPC4570C	I.C. NEC	
	IC352	M5218AP	I.C. MITSUBISHI	
	IC401	CXD2500AQ	I.C. 1680	
	IC501	CXA1571S	I.C. 1680	
	IC601	CXA1372S	I.C. 1680	
	IC602	STA341M(A)	I.C. SANKEN	
	IC603	M5218AL	I.C. MITSUBISHI	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D204	1SS133	SILICON ROHM	
	D205	1SS133	SILICON ROHM	
	D211	1SS119	SILICON HITACHI	
	D212	1SS119	SILICON HITACHI	
	D213	1SS119	SILICON HITACHI	
	D214	1SS119	SILICON HITACHI	
	D215	1SS119	SILICON HITACHI	
	D216	1SS119	SILICON HITACHI	
	D217	1SS119	SILICON HITACHI	
	D401	1SS133	SILICON ROHM	
	D601	1SS133	SILICON ROHM	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C201	QER51HM-475	4.7MF 50V ELECTRO	
	C202	QER51HM-475	4.7MF 50V ELECTRO	
	C203	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C204	QER50JM-107	100MF 6.3V ELECTRO	
	C205	QCBB1HK-331	330PF 50V CERAMIC	
	C207	QCZ0205-155	1.5MF 25V CERAMIC	
	C209	QER50JM-476	47MF 6.3V ELECTRO	
	C300	QFV81HJ-104	0.1MF 50V T.FILM	
	C301	QETB1AM-107	100MF 10V ELECTRO	
	C302	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C303	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C305	QCS21HJ-470	47PF 50V CERAMIC	
	C307	QCT30CH-120	12PF 50V CERAMIC	
	C308	QCT30CH-3R3	3.3PF 50V CERAMIC	
	C309	QCZ0205-155	1.5MF 25V CERAMIC	
	C310	QCZ0205-155	1.5MF 25V CERAMIC	
	C311	QETB1AM-107	100MF 10V ELECTRO	
	C312	QETB1AM-107	100MF 10V ELECTRO	
	C313	QCZ0205-155	1.5MF 25V CERAMIC	
	C314	QCZ0205-155	1.5MF 25V CERAMIC	
	C315	QCZ0205-155	1.5MF 25V CERAMIC	
	C316	QCZ0205-155	1.5MF 25V CERAMIC	
	C317	QCS21HJ-681	680PF 50V CERAMIC	
	C318	QCS21HJ-681	680PF 50V CERAMIC	
	C321	QFN81HJ-202	2000PF 50V MYLAR	
	C322	QFN81HJ-202	2000PF 50V MYLAR	
	C323	QFN81HJ-202	2000PF 50V MYLAR	
	C324	QFN81HJ-202	2000PF 50V MYLAR	
	C325	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C326	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C327	QFN81HJ-392	3900PF 50V MYLAR	
	C328	QFN81HJ-392	3900PF 50V MYLAR	
	C329	QFN81HJ-223	0.022MF 50V MYLAR	
	C330	QFN81HJ-223	0.022MF 50V MYLAR	
	C331	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C332	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C333	EET2502-476N	47MF ELECTRO	
	C334	EET2502-476N	47MF ELECTRO	
	C335	QFN81HJ-822	8200PF 50V MYLAR	
	C336	QFN81HJ-822	8200PF 50V MYLAR	
	C337	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C341	QETB1HM-475	4.7MF 50V ELECTRO	
	C342	QETB1HM-475	4.7MF 50V ELECTRO	
	C343	QCS21HJ-560	56PF 50V CERAMIC	
	C344	QCS21HJ-560	56PF 50V CERAMIC	
	C345	QETB1CM-476	47MF 16V ELECTRO	
	C346	QETB1CM-476	47MF 16V ELECTRO	
	C347	QFN81HJ-103	0.01MF 50V MYLAR	
	C348	QFN81HJ-103	0.01MF 50V MYLAR	
	C349	QCS21HJ-471	470PF 50V CERAMIC	
	C351	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C352	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C353	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C354	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C355	QETB0JM-477	470MF 6.3V ELECTRO	
	C356	QETB0JM-477	470MF 6.3V ELECTRO	
	C357	QCS21HJ-471	470PF 50V CERAMIC	
	C358	QCS21HJ-471	470PF 50V CERAMIC	
	C359	QCS21HJ-471	470PF 50V CERAMIC	
	C360	QCS21HJ-471	470PF 50V CERAMIC	
	C361	QFN81HJ-392	3900PF 50V MYLAR	
	C362	QFN81HJ-392	3900PF 50V MYLAR	
	C371	QCS21HJ-5R0	5PF 50V CERAMIC	C
	C371	QCS21HJ-5R0	5PF 50V CERAMIC	E
	C371	QCS21HJ-5R0	5PF 50V CERAMIC	F
	C371	QCS21HJ-5R0	5PF 50V CERAMIC	G
	C372	QCS21HJ-5R0	5PF 50V CERAMIC	
	C373	QCS21HJ-5R0	5PF 50V CERAMIC	C
	C373	QCS21HJ-5R0	5PF 50V CERAMIC	E
	C373	QCS21HJ-5R0	5PF 50V CERAMIC	F
	C373	QCS21HJ-5R0	5PF 50V CERAMIC	G
	C374	QCS21HJ-5R0	5PF 50V CERAMIC	
	C391	QCXB1CM-182	1800PF 16V CERAMIC	
	C392	QCXB1CM-182	1800PF 16V CERAMIC	
	C398	QCBB1HK-221	220PF 50V CERAMIC	
	C401	QCZ0205-155	1.5MF 25V CERAMIC	
	C402	QFN81HJ-473	0.047MF 50V MYLAR	
	C403	QFV81HJ-104	0.1MF 50V T.FILM	
	C404	QFN81HJ-152	1500PF 50V MYLAR	
	C405	QCF21HP-102	1000PF 50V CERAMIC	
	C406	QCZ0205-155	1.5MF 25V CERAMIC	
	C407	QCS21HJ-680	68PF 50V CERAMIC	
	C451	QCZ0205-155	1.5MF 25V CERAMIC	
	C454	QCHB1EZ-223	0.022MF 25V CERAMIC	C
	C454	QCHB1EZ-223	0.022MF 25V CERAMIC	E
	C454	QCHB1EZ-223	0.022MF 25V CERAMIC	F
	C454	QCHB1EZ-223	0.022MF 25V CERAMIC	G
	C501	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C502	QCS21HJ-100	10PF 50V CERAMIC	
	C503	QCS21HJ-100	10PF 50V CERAMIC	
	C504	QETB1AM-476	47MF 10V ELECTRO	
	C505	QCS21HJ-820	82PF 50V CERAMIC	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	C506	QCS21HJ-101	100PF	50V	CERAMIC	
	C507	QCZ0205-155	1.5MF	25V	CERAMIC	
	C508	QCZ0205-155	1.5MF	25V	CERAMIC	
	C509	QCS21HJ-220	22PF	50V	CERAMIC	
	C510	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C601	QFN81HJ-182	1800PF	50V	MYLAR	
	C603	QFN81HJ-222	2200PF	50V	MYLAR	
	C604	QFN81HJ-222	2200PF	50V	MYLAR	
	C605	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C606	QFN81HJ-333	0.033MF	50V	MYLAR	
	C607	QFN81HJ-103	0.01MF	50V	MYLAR	
	C608	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C609	QFN81HJ-333	0.033MF	50V	MYLAR	
	C610	QCZ0205-155	1.5MF	25V	CERAMIC	
	C611	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C612	QFV81HJ-104	0.1MF	50V	T.FILM	
	C613	QCS21HJ-471	470PF	50V	CERAMIC	
	C614	QFN81HJ-104	0.1MF	50V	MYLAR	
	C615	QFN81HJ-333	0.033MF	50V	MYLAR	
	C616	QFN81HJ-473	0.047MF	50V	MYLAR	
	C617	QFN81HJ-473	0.047MF	50V	MYLAR	
	C618	QFN81HJ-473	0.047MF	50V	MYLAR	
	C619	QETB1HM-475	4.7MF	50V	ELECTRO	
	C620	QFN81HJ-104	0.1MF	50V	MYLAR	
	C622	QCF21HP-223	0.022MF	50V	CERAMIC	
	C623	QFN81HJ-473	0.047MF	50V	MYLAR	
	C624	QETB1EM-106	10MF	25V	ELECTRO	
	C626	QFN81HJ-183	0.018MF	50V	MYLAR	
	C627	QFN81HJ-103	0.01MF	50V	MYLAR	
	C628	QETB1HM-475	4.7MF	50V	ELECTRO	
	C629	QFN81HJ-333	0.033MF	50V	MYLAR	
	C631	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C632	QCHB1EZ-223	0.022MF	25V	CERAMIC	
	C661	QETB1CM-477	470MF	16V	ELECTRO	
	C662	QETB1CM-477	470MF	16V	ELECTRO	
	C701	QCBB1HK-101	100PF	50V	CERAMIC	
	C902	QCS21HJ-101	100PF	50V	CERAMIC	C
	C902	QCS21HJ-101	100PF	50V	CERAMIC	E
	C902	QCS21HJ-101	100PF	50V	CERAMIC	F
	C902	QCS21HJ-101	100PF	50V	CERAMIC	G
	C905	QCT26CH-180	18PF	50V	CERAMIC	
	C908	QCT26CH-180	18PF	50V	CERAMIC	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	R201	QRD167J-821	820	1/6W	CARBON	
	R202	QRD167J-472	4.7K	1/6W	CARBON	
	R204	QRD167J-471	470	1/6W	CARBON	
	R205	QRD167J-103	10K	1/6W	CARBON	
	R210	QRD167J-473	47K	1/6W	CARBON	
	R211	QRD167J-473	47K	1/6W	CARBON	
	R212	QRD167J-473	47K	1/6W	CARBON	
	R213	QRD167J-473	47K	1/6W	CARBON	
	R214	QRD167J-473	47K	1/6W	CARBON	
	R301	QRD167J-101	100	1/6W	CARBON	
	R302	QRD167J-472	4.7K	1/6W	CARBON	
	R303	QRD167J-561	560	1/6W	CARBON	
	R304	QRD167J-561	560	1/6W	CARBON	
	R305	QRD167J-561	560	1/6W	CARBON	
	R306	QRD167J-561	560	1/6W	CARBON	
	R307	QRD167J-103	10K	1/6W	CARBON	
	R309	QRD167J-101	100	1/6W	CARBON	
	R310	QRD167J-101	100	1/6W	CARBON	
	R311	QRD167J-181	180	1/6W	CARBON	
	R313	QRD167J-2R2	2.2	1/6W	CARBON	
	R314	QRD167J-2R2	2.2	1/6W	CARBON	
	R315	QRD167J-103	10K	1/6W	CARBON	
	R316	QRD167J-103	10K	1/6W	CARBON	
⚠	R321	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R322	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R323	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R324	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R325	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R326	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R327	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R328	QRV144F-1802	18K	1/4W	M.FILM	
⚠	R333	QRV144F-1501	1.5K	1/4W	M.FILM	
⚠	R334	QRV144F-1501	1.5K	1/4W	M.FILM	
⚠	R335	QRV144F-1501	1.5K	1/4W	M.FILM	
⚠	R336	QRV144F-1501	1.5K	1/4W	M.FILM	
	R337	QRD167J-561	560	1/6W	CARBON	
	R338	QRD167J-561	560	1/6W	CARBON	
	R339	QRD167J-511	510	1/6W	CARBON	
	R340	QRD167J-511	510	1/6W	CARBON	
	R341	QRD167J-103	10K	1/6W	CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION			AREA
	R342	QRD167J-103	10K	1/6W	CARBON	
	R343	QRD167J-273	27K	1/6W	CARBON	
	R344	QRD167J-273	27K	1/6W	CARBON	
	R345	QRD167J-821	820	1/6W	CARBON	
	R346	QRD167J-821	820	1/6W	CARBON	
	R347	QRD167J-101	100	1/6W	CARBON	
	R348	QRD167J-101	100	1/6W	CARBON	
	R351	QRD167J-103	10K	1/6W	CARBON	
	R352	QRD167J-103	10K	1/6W	CARBON	
	R353	QRD167J-151	150	1/6W	CARBON	
	R354	QRD167J-151	150	1/6W	CARBON	
	R355	QRD167J-473	47K	1/6W	CARBON	
	R356	QRD167J-684	680K	1/6W	CARBON	
	R357	QRD167J-102	1K	1/6W	CARBON	
	R358	QRD167J-102	1K	1/6W	CARBON	
	R359	QRD167J-473	47K	1/6W	CARBON	
	R360	QRD167J-473	47K	1/6W	CARBON	
	R361	QRD167J-103	10K	1/6W	CARBON	
	R362	QRD167J-103	10K	1/6W	CARBON	
	R363	QRD167J-273	27K	1/6W	CARBON	
	R364	QRD167J-273	27K	1/6W	CARBON	
	R365	QRD167J-623	62K	1/6W	CARBON	
	R366	QRD167J-623	62K	1/6W	CARBON	
	R369	QRD167J-680	68	1/6W	CARBON	
	R370	QRD167J-680	68	1/6W	CARBON	
	R371	QRD167J-390	39	1/6W	CARBON	
	R372	QRD167J-390	39	1/6W	CARBON	
	R375	QRD167J-101	100	1/6W	CARBON	
	R376	QRD167J-101	100	1/6W	CARBON	
	R377	QRD167J-101	100	1/6W	CARBON	
	R378	QRD167J-101	100	1/6W	CARBON	
	R379	QRD167J-912	9.1K	1/6W	CARBON	
	R380	QRD167J-912	9.1K	1/6W	CARBON	
	R381	QRD167J-912	9.1K	1/6W	CARBON	
	R382	QRD167J-912	9.1K	1/6W	CARBON	
⚠	R383	QRV144F-1601	1.6K	1/4W	M.FILM	
⚠	R384	QRV144F-1601	1.6K	1/4W	M.FILM	
⚠	R385	QRV144F-1601	1.6K	1/4W	M.FILM	
⚠	R386	QRV144F-1601	1.6K	1/4W	M.FILM	
	R387	QRD167J-101	100	1/6W	CARBON	
	R388	QRD167J-101	100	1/6W	CARBON	
	R391	QRD167J-103	10K	1/6W	CARBON	
	R392	QRD167J-103	10K	1/6W	CARBON	
	R393	QRD167J-101	100	1/6W	CARBON	
	R394	QRD167J-101	100	1/6W	CARBON	
	R398	QRD167J-102	1K	1/6W	CARBON	
	R399	QRD167J-101	100	1/6W	CARBON	
	R401	QRD167J-332	3.3K	1/6W	CARBON	
	R402	QRD167J-682	6.8K	1/6W	CARBON	
	R403	QRD167J-103	10K	1/6W	CARBON	
	R404	QRD167J-103	10K	1/6W	CARBON	
	R405	QRD167J-102	1K	1/6W	CARBON	
	R406	QRD167J-102	1K	1/6W	CARBON	
	R407	QRD167J-681	680	1/6W	CARBON	
	R408	QRD167J-103	10K	1/6W	CARBON	
	R409	QRD167J-331	330	1/6W	CARBON	
	R501	QRD167J-102	1K	1/6W	CARBON	
	R504	QRD167J-183	18K	1/6W	CARBON	
	R505	QRD167J-183	18K	1/6W	CARBON	
	R506	QRD167J-121	120	1/6W	CARBON	
	R507	QRD167J-103	10K	1/6W	CARBON	
	R508	QRD167J-332	3.3K	1/6W	CARBON	
	R509	QRD167J-822	8.2K	1/6W	CARBON	
	R510	QRD167J-113	11K	1/6W	CARBON	
	R511	QRD167J-104	100K	1/6W	CARBON	
	R512	QVPA601-203A	20K		VARIABLE	
	R513	QVPA601-203A	20K		VARIABLE	
	R514	QRD167J-103	10K	1/6W	CARBON	
	R601	QRD167J-472	4.7K	1/6W	CARBON	
	R602	QRD167J-472	4.7K	1/6W	CARBON	
	R603	QVPA601-203A	20K		VARIABLE	
	R604	QVPA601-203A	20K		VARIABLE	
	R605	QRD167J-102	1K	1/6W	CARBON	
	R606	QRD167J-104	100K	1/6W	CARBON	
	R607	QRD167J-103	10K	1/6W	CARBON	
	R608	QRD167J-273	27K	1/6W	CARBON	
	R609	QRD167J-273	27K	1/6W	CARBON	
	R610	QRD167J-224	220K	1/6W	CARBON	
	R611	QRD167J-2R2	2.2	1/6W	CARBON	
	R612	QRD167J-823	82K	1/6W	CARBON	
	R613	QRD167J-104	100K	1/6W	CARBON	
	R614	QRD167J-2R2	2.2	1/6W	CARBON	
	R615	QRD167J-224	220K	1/6W	CARBON	
	R616	QRD167J-333	33K	1/6W	CARBON	
	R617	QRD167J-103	10K	1/6W	CARBON	
	R618	QRD167J-514	510K	1/6W	CARBON	
	R619	QRD167J-2R2	2.2	1/6W	CARBON	
	R620	QRD167J-183	18K	1/6W	CARBON	
	R621	QRD167J-363	36K	1/6W	CARBON	
	R622	QRD167J-124	120K	1/6W	CARBON	
	R623	QRD167J-472	4.7K	1/6W	CARBON	
	R626	QRD167J-153	15K	1/6W	CARBON	
	R627	QRD167J-333	33K	1/6W	CARBON	
	R628	QRD167J-752	7.5K	1/6W	CARBON	
	R629	QRD167J-752	7.5K	1/6W	CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R630	QRD167J-333	33K 1/6W CARBON	
	R631	QRD167J-221	220 1/6W CARBON	
	R632	QRD167J-513	51K 1/6W CARBON	
	R633	QRD167J-513	51K 1/6W CARBON	
	R634	QRD167J-683	68K 1/6W CARBON	
	R635	QRD167J-683	68K 1/6W CARBON	
	R636	QRD167J-684	680K 1/6W CARBON	
	R637	QRD167J-221	220 1/6W CARBON	
	R638	QRD167J-184	180K 1/6W CARBON	
	R701	QRD167J-470	47 1/6W CARBON	
	R702	QRD167J-221	220 1/6W CARBON	
	R703	QRD167J-101	100 1/6W CARBON	
	VR351	QVAB99A-E24C	20K VARIABLE	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10217-003	CIRCUIT BOARD	
		E306805-010	SPACER	
		E306951-221SS	FL DISPLAY HOLDER	
		E406604-001	EARTH BRACKET	
		E70225-002	EARTH PLATE	
		E70859-001	EARTH PLATE	
		E75464-001	EARTH PLATE	
	J201	EMV7123-025R	CONNECTOR(25PIN)	
	J202	EMV7123-025	CONNECTOR(25PIN)	
	J203	EMV7120-012	CONNECTOR(12PIN)	
	J204	EMV5120-012	PLUG ASSY(12PIN)	
	J301	EMN00TV-219AJ2	2P PIN JACK	
	J302	QMS6302-131	HEADPHONE JACK	
	J451	GP1F32T	OPTICAL JACK(OPT.OUT)	
	J601	EMV7123-013	CONNECTOR(13PIN)	
	J701	QMS3501-020	MINI JACK(COMPULINK)	
	L301	EQL4004-1R0	INDUCTOR	
	L303	EQL4004-1R0	INDUCTOR	
	L304	EQL4004-1R0	INDUCTOR	
	P101	VMC0107-010	WIRE CONNECTOR(10PIN)	

⚠ : SAFETY PARTS

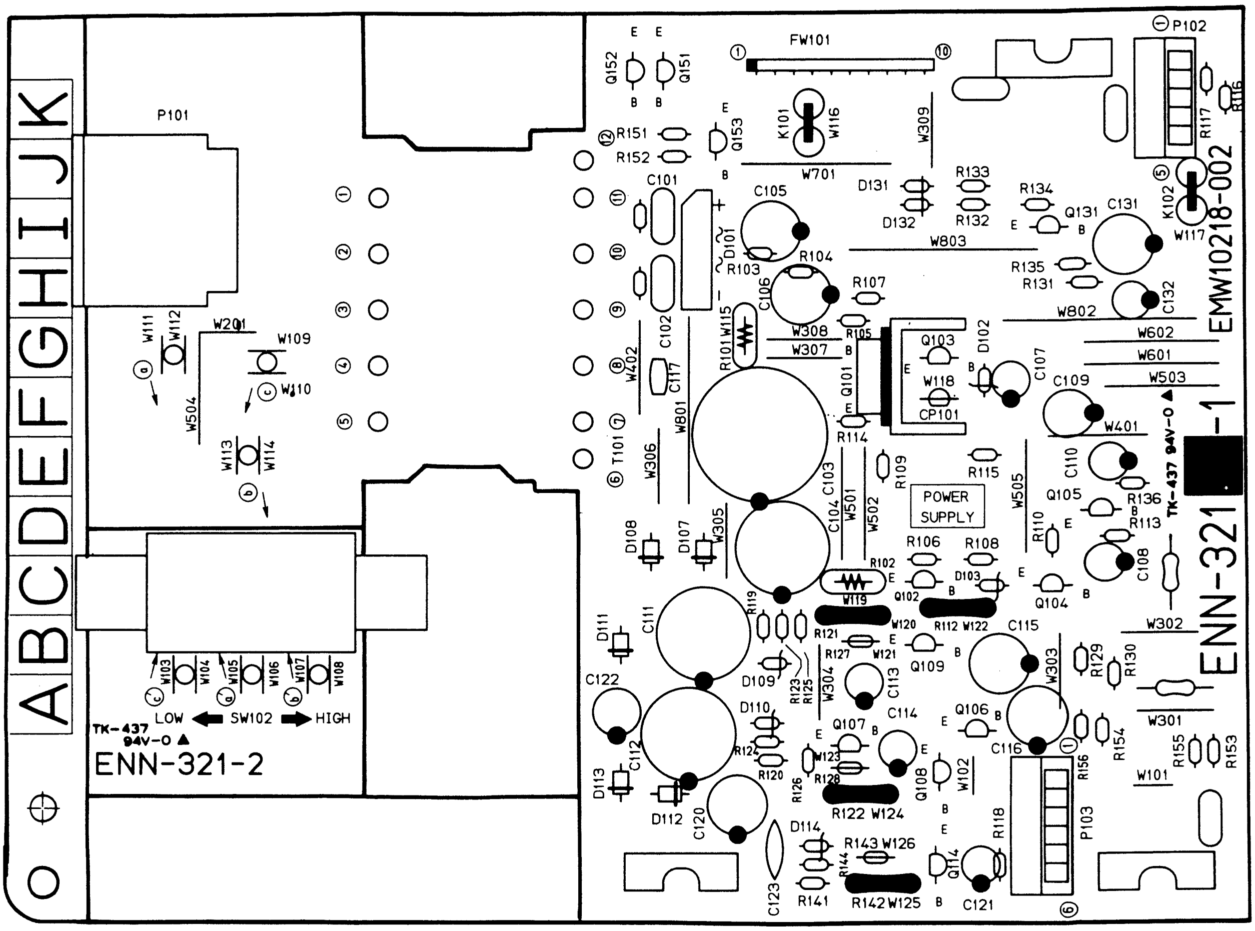
Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	P351	VMC0107-003	CONNECT TERMINAL(3PIN)	
	P501	EMV5109-010A	PLUG ASSY(10PIN)	
	X201	ECX0060-000EM	RESONATOR	
	X301	ECX0169-344KL	RESONATOR	
	FL201	ELU0001-136	FL TUBE	
	FW102	EWR35B-16LST	FLAT WIRE(5PIN)	
	FW103	EWR36B-13LST	FLAT WIRE(6PIN)	
	FW351	EWR33B-45LST	FLAT WIRE(3PIN)	
	SW101	QST4101-E20	PUSH SWITCH(POWER ON/OFF)	
	SW201	ESP0001-018	TACT SWITCH(OPEN/CLOSE)	
	SW202	ESP0001-018	TACT SWITCH(REPEAT)	
	SW203	ESP0001-018	TACT SWITCH(PROGRAM)	
	SW204	ESP0001-018	TACT SWITCH(CANCEL)	
	SW205	ESP0001-018	TACT SWITCH(+10)	
	SW206	ESP0001-018	TACT SWITCH(EDIT)	
	SW207	ESP0001-018	TACT SWITCH(A/B)	
	SW208	ESP0001-018	TACT SWITCH(DDRP)	
	SW209	ESP0001-018	TACT SWITCH(RANDOM)	
	SW210	ESP0001-018	TACT SWITCH(PLAY/PAUSE)	
	SW211	ESP0001-018	TACT SWITCH(1)	
	SW212	ESP0001-018	TACT SWITCH(2)	
	SW213	ESP0001-018	TACT SWITCH(3)	
	SW214	ESP0001-018	TACT SWITCH(4)	
	SW215	ESP0001-018	TACT SWITCH(5)	
	SW216	ESP0001-018	TACT SWITCH(6)	
	SW217	ESP0001-018	TACT SWITCH(7)	
	SW218	ESP0001-018	TACT SWITCH(8)	
	SW219	ESP0001-018	TACT SWITCH(9)	
	SW220	ESP0001-018	TACT SWITCH(10)	
	SW221	ESP0001-018	TACT SWITCH(11)	
	SW222	ESP0001-018	TACT SWITCH(12)	
	SW223	ESP0001-018	TACT SWITCH(13)	
	SW224	ESP0001-018	TACT SWITCH(14)	
	SW225	ESP0001-018	TACT SWITCH(15)	
	SW226	ESP0001-018	TACT SWITCH(16)	
	SW227	ESP0001-018	TACT SWITCH(17)	
	SW228	ESP0001-018	TACT SWITCH(18)	
	SW229	ESP0001-018	TACT SWITCH(19)	
	SW230	ESP0001-018	TACT SWITCH(20)	
	SW231	ESP0001-018	TACT SWITCH(FOWARD SCAN)	
	SW232	ESP0001-018	TACT SWITCH(BACKWARD SCAN)	
	SW233	ESP0001-018	TACT SWITCH(BACKWARD SKIP)	
	SW234	ESP0001-018	TACT SWITCH(FOWARD SKIP)	
	SW235	ESP0001-018	TACT SWITCH(STOP)	

⚠ : SAFETY PARTS

■ENN-321 ☐ Power Supply PC Board Ass'y

Note : ENN-321 ☐ varies according to the areas employed. See note (1) when placing an order.


A B C D E F G H I J K
P101
ENN-321-2
TK-437 94V-0
LOW SW102 HIGH
W103 W104 W105 W106 W107 W108
W109 W110 W111 W112 W113 W114 W201 W504
FW101
P102
P103
Q101 Q102 Q103 Q104 Q105 Q106 Q107 Q108 Q109 Q114 Q131 Q151 Q152 Q153
D101 D102 D103 D107 D108 D109 D110 D111 D112 D113 D114 D131 D132
C101 C102 C103 C104 C105 C106 C107 C108 C109 C110 C111 C112 C113 C114 C115 C116 C117 C120 C121 C122 C123 C131 C132
R101 R102 R103 R104 R105 R106 R107 R108 R109 R110 R114 R115 R117 R118 R119 R120 R121 R122 R123 R124 R125 R126 R127 R128 R129 R130 R131 R132 R133 R134 R135 R136 R141 R142 R143 R144 R151 R152 R153 R154 R155 R156
K101 K102
T101
CP101
POWER SUPPLY
EMW10218-002
TK-437 94V-0
ENN-321 -1

Note (1)

PC Board Ass'y	Designated Areas
ENN-321 C	Canada
ENN-321 D	the U.S.A.
ENN-321 E	Continental Europe, Scandinavia
ENN-321 F	Universal Type
ENN-321 G	Germany

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q101	2SB1187(E,F)	SILICON ROHM	
	Q102	2SC2060(Q,R)	SILICON ROHM	
	Q103	2SD1302(S,T)	SILICON MATSUSHITA	
	Q104	2SA933S(R,S)	SILICON ROHM	
	Q105	2SD1302(S,T)	SILICON MATSUSHITA	
	Q106	DTA114YS	SILICON ROHM	
	Q107	DTC114YS	SILICON ROHM	
	Q108	2SA934(Q,R)	SILICON ROHM	
	Q109	2SC2060(Q,R)	SILICON ROHM	
	Q114	2SA733A(P,Q)	SILICON NEC	
	Q131	2SA933S(R,S)	SILICON ROHM	
	Q151	2SD2144S(VW)	SILICON ROHM	
	Q152	2SD2144S(VW)	SILICON ROHM	
	Q153	DTA114YS	SILICON ROHM	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
⚠	D101	S1VB20F	SILICON SINDENGEN	
	D102	MTZ5.6JA	ZENER ROHM	
	D103	MTZ5.6JA	ZENER ROHM	
⚠	D107	ERA15-02L19	SILICON KYOUDOU	
⚠	D108	ERA15-02L19	SILICON KYOUDOU	
	D109	MTZ13JA	ZENER ROHM	
	D110	MTZ13JA	ZENER ROHM	
⚠	D111	ERA15-02L19	SILICON KYOUDOU	
⚠	D112	ERA15-02L19	SILICON KYOUDOU	
⚠	D113	ERA15-02L19	SILICON KYOUDOU	
	D114	MTZ24JC	ZENER ROHM	
	D131	1SS133	SILICON ROHM	
	D132	1SS133	SILICON ROHM	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C101	QCHB1EZ-223	0.022MF 25V CERAMIC	C
	C101	QCHB1EZ-223	0.022MF 25V CERAMIC	D
	C101	QFV81HJ-104	0.1MF 50V T.FILM	E
	C101	QFV81HJ-104	0.1MF 50V T.FILM	F
	C101	QFV81HJ-104	0.1MF 50V T.FILM	G
	C102	QCHB1EZ-223	0.022MF 25V CERAMIC	C
	C102	QCHB1EZ-223	0.022MF 25V CERAMIC	D
	C102	QFV81HJ-104	0.1MF 50V T.FILM	E
	C102	QFV81HJ-104	0.1MF 50V T.FILM	F
	C102	QFV81HJ-104	0.1MF 50V T.FILM	G
	C103	QETB1CM-338	3300MF 16V ELECTRO	
	C104	QETB1CM-228	2200MF 16V ELECTRO	
	C107	QETB1HM-225	2.2MF 50V ELECTRO	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C108	QETB1HM-225	2.2MF 50V ELECTRO	
	C109	QETB0JM-227	220MF 6.3V ELECTRO	
	C110	QETB1AM-476	47MF 10V ELECTRO	
	C111	QETB1EM-108	1000MF 25V ELECTRO	
	C112	QETB1EM-108	1000MF 25V ELECTRO	
	C113	QETB1CM-476	47MF 16V ELECTRO	
	C114	QETB1CM-476	47MF 16V ELECTRO	
	C115	QETB1CM-227	220MF 16V ELECTRO	
	C116	QETB1CM-227	220MF 16V ELECTRO	
	C120	QETB1HM-107	100MF 50V ELECTRO	
	C121	QETB1HM-475	4.7MF 50V ELECTRO	
	C122	QETB1EM-107	100MF 25V ELECTRO	
	C123	QCF21HP-473	0.047MF 50V CERAMIC	
	C131	QETB1CM-227	220MF 16V ELECTRO	
	C132	QETB1CM-226	22MF 16V ELECTRO	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R101	PTH8L07BB2R2N1B	POSITIVE	C
	R101	QRD167J-2R2	2.2 1/6W CARBON	D
	R101	PTH8L07BB2R2N1B	POSITIVE	E
	R101	PTH8L07BB2R2N1B	POSITIVE	F
	R101	PTH8L07BB2R2N1B	POSITIVE	G
	R102	PTH8L07BB2R2N1B	POSITIVE	C
	R102	QRD167J-2R2	2.2 1/6W CARBON	D
	R102	PTH8L07BB2R2N1B	POSITIVE	E
	R102	PTH8L07BB2R2N1B	POSITIVE	F
	R102	PTH8L07BB2R2N1B	POSITIVE	G
	R105	QRD167J-222	2.2K 1/6W CARBON	
	R106	QRD167J-222	2.2K 1/6W CARBON	
	R107	QRD167J-221	220 1/6W CARBON	
	R108	QRD167J-221	220 1/6W CARBON	
	R109	QRD167J-221	220 1/6W CARBON	
	R110	QRD167J-221	220 1/6W CARBON	
⚠	R112	QRZ0077-100	10 1/4W FUSIBLE	C
⚠	R112	QRZ0077-100	10 1/4W FUSIBLE	E
⚠	R112	QRZ0077-100	10 1/4W FUSIBLE	F
⚠	R112	QRZ0077-100	10 1/4W FUSIBLE	G
	R113	QRD167J-331	330 1/6W CARBON	
	R114	QRD167J-202	2K 1/6W CARBON	
	R115	QRD167J-332	3.3K 1/6W CARBON	
	R116	QRD167J-911	910 1/6W CARBON	
	R117	QRD167J-911	910 1/6W CARBON	
	R118	QRD167J-103	10K 1/6W CARBON	
	R119	QRD167J-512	5.1K 1/6W CARBON	
	R120	QRD167J-512	5.1K 1/6W CARBON	
⚠	R121	QRZ0077-100	10 1/4W FUSIBLE	C
⚠	R121	QRZ0077-100	10 1/4W FUSIBLE	E
⚠	R121	QRZ0077-100	10 1/4W FUSIBLE	F
⚠	R121	QRZ0077-100	10 1/4W FUSIBLE	G
⚠	R122	QRZ0077-100	10 1/4W FUSIBLE	C
⚠	R122	QRZ0077-100	10 1/4W FUSIBLE	E
⚠	R122	QRZ0077-100	10 1/4W FUSIBLE	F
⚠	R122	QRZ0077-100	10 1/4W FUSIBLE	G
	R123	QRD167J-512	5.1K 1/6W CARBON	
	R124	QRD167J-512	5.1K 1/6W CARBON	
	R125	QRD167J-512	5.1K 1/6W CARBON	
	R126	QRD167J-512	5.1K 1/6W CARBON	
	R127	QRD167J-121	120 1/6W CARBON	C
	R127	QRD167J-121	120 1/6W CARBON	E
	R127	QRD167J-121	120 1/6W CARBON	F
	R127	QRD167J-121	120 1/6W CARBON	G
	R128	QRD167J-121	120 1/6W CARBON	C
	R128	QRD167J-121	120 1/6W CARBON	E
	R128	QRD167J-121	120 1/6W CARBON	F
	R128	QRD167J-121	120 1/6W CARBON	G
	R129	QRD167J-472	4.7K 1/6W CARBON	
	R130	QRD167J-472	4.7K 1/6W CARBON	
	R131	QRD167J-221	220 1/6W CARBON	
	R132	QRD167J-221	220 1/6W CARBON	C
	R132	QRD167J-111	110 1/6W CARBON	D
	R132	QRD167J-221	220 1/6W CARBON	E
	R132	QRD167J-221	220 1/6W CARBON	F
	R132	QRD167J-221	220 1/6W CARBON	G
	R133	QRD167J-221	220 1/6W CARBON	C
	R133	QRD167J-221	220 1/6W CARBON	E
	R133	QRD167J-221	220 1/6W CARBON	F
	R133	QRD167J-221	220 1/6W CARBON	G
	R134	QRD167J-822	8.2K 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R135	QRD167J-683	68K 1/6W CARBON	
	R136	QRD167J-103	10K 1/6W CARBON	
	R141	QRD167J-472	4.7K 1/6W CARBON	
⚠	R142	QRZ0077-560	56 1/4W FUSIBLE	C
⚠	R142	QRZ0077-560	56 1/4W FUSIBLE	E
⚠	R142	QRZ0077-560	56 1/4W FUSIBLE	F
⚠	R142	QRZ0077-560	56 1/4W FUSIBLE	G
	R143	QRD167J-121	120 1/6W CARBON	C
	R143	QRD167J-121	120 1/6W CARBON	E
	R143	QRD167J-121	120 1/6W CARBON	F
	R143	QRD167J-121	120 1/6W CARBON	G
	R144	QRD167J-472	4.7K 1/6W CARBON	
	R151	QRD167J-103	10K 1/6W CARBON	
	R152	QRD167J-103	10K 1/6W CARBON	
	R153	QRD167J-271	270 1/6W CARBON	
	R154	QRD167J-271	270 1/6W CARBON	
	R155	QRD167J-271	270 1/6W CARBON	
	R156	QRD167J-271	270 1/6W CARBON	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		E70306-001	HEAT SINK	
		E70859-001	EARTH PLATE	
		SBSE3008Z	SCREW	
		EMW10218-002(S)	PRINTED BOARD	C
		EMW10218-002(S)	PRINTED BOARD	D
		EMW10218-002(S)	PRINTED BOARD	E
		EMW10218-002(S)	PRINTED BOARD	F
		EMW10218-002(S)	PRINTED BOARD	G
	P101	QMCB001-E03H	AC INLET	C
	P101	QMCB001-E03H	AC INLET	D
	P101	QMCB001-E02H	AC SOCKET	E
	P101	QMCB001-E02H	AC SOCKET	F
	P101	QMCB001-E02H	AC SOCKET	G
	P102	VMC0107-005	CONNECT TERMINAL(5PIN)	
	P103	VMC0107-006	CONNECT TERMINAL(6PIN)	
⚠	CP101	ICP-N15	I.C. PROTECTOR	C
⚠	CP101	ICP-N15	I.C. PROTECTOR	E
⚠	CP101	ICP-N15	I.C. PROTECTOR	F
⚠	CP101	ICP-N15	I.C. PROTECTOR	G
	FW101	EWR3AB-25LST	FLAT WIRE(10PIN)	
	SW102	QSS1L22-E01	SLIDE SWITCH(VOLTAGE SELECT)	F

⚠ : SAFETY PARTS

Accessories List

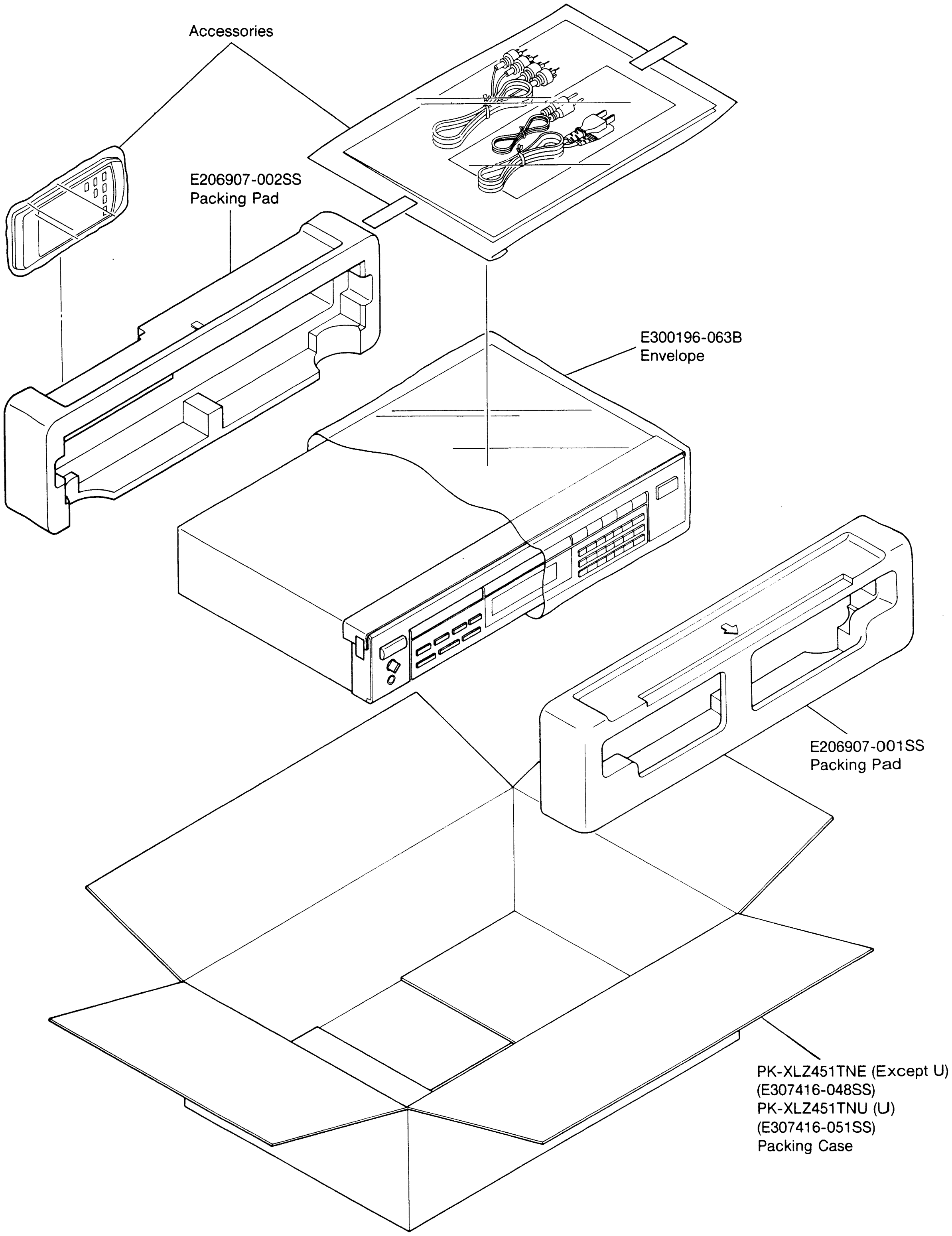
⚠	Part Number	Part Name	Q'ty	Description	Areas
	E30580-1872A	Instruction Book	1		J
	E30580-1873A	Instruction Book	1		C , U , EF , G
	E30580-1874A	Instruction Book	1		EN
	BT-20025K	Warranty Card	1		C
	BT-20117	Warranty Card	1		G
	BT20071A	Service Center List	1		C
	BT-20044G	Safety Instruction Sheet	1		J
	BT-20047F	Warranty Card	1		J
	BT-20108A	Service Information	1		J
	E66416-003	Envelope	1	for Warranty Card	J
	EWP302-011	Signal Cord	1		
	EWP805-001	1P Plug Cord	1		
	E35497-022	Caution Sheet	1	220V	U
⚠	E04056	Siemens Plug	1		U
	RM-SX451U	Remote Controller	1		
	R03BPA-2STSA	Battery	1		J , C
	UM-4NJ-2PSA	Battery	1		Except J , C
⚠	QMP1E00-183J5	Power Cord	1		J , C
⚠	QMP7530-183	Power Cord	1		U
⚠	QMP39G0-183E	Power Cord	1		EN , EF , G
	E300196-010B	Envelope	1		

⚠: Safety Parts

The Marks Designated Areas

J······················the U.S.A.
C······················Canada
G······················Germany
EN·····················Scandinavia
EF·····················Continental Europe
U······················Universal Type
No mark indicates all areas.

Packing Materials and Part Numbers


Accessories
E206907-002SS
Packing Pad
E300196-063B
Envelope
E206907-001SS
Packing Pad
PK-XLZ451TNE (Except U)
(E307416-048SS)
PK-XLZ451TNU (U)
(E307416-051SS)
Packing Case

The Marks Designated Areas	
J··················the U.S.A.	EF······················Continental Europe
C··················Canada	U······················Universal Type
G··················Germany	No mark indicates all areas.
EN··················Scandinavia	

PARTS LIST

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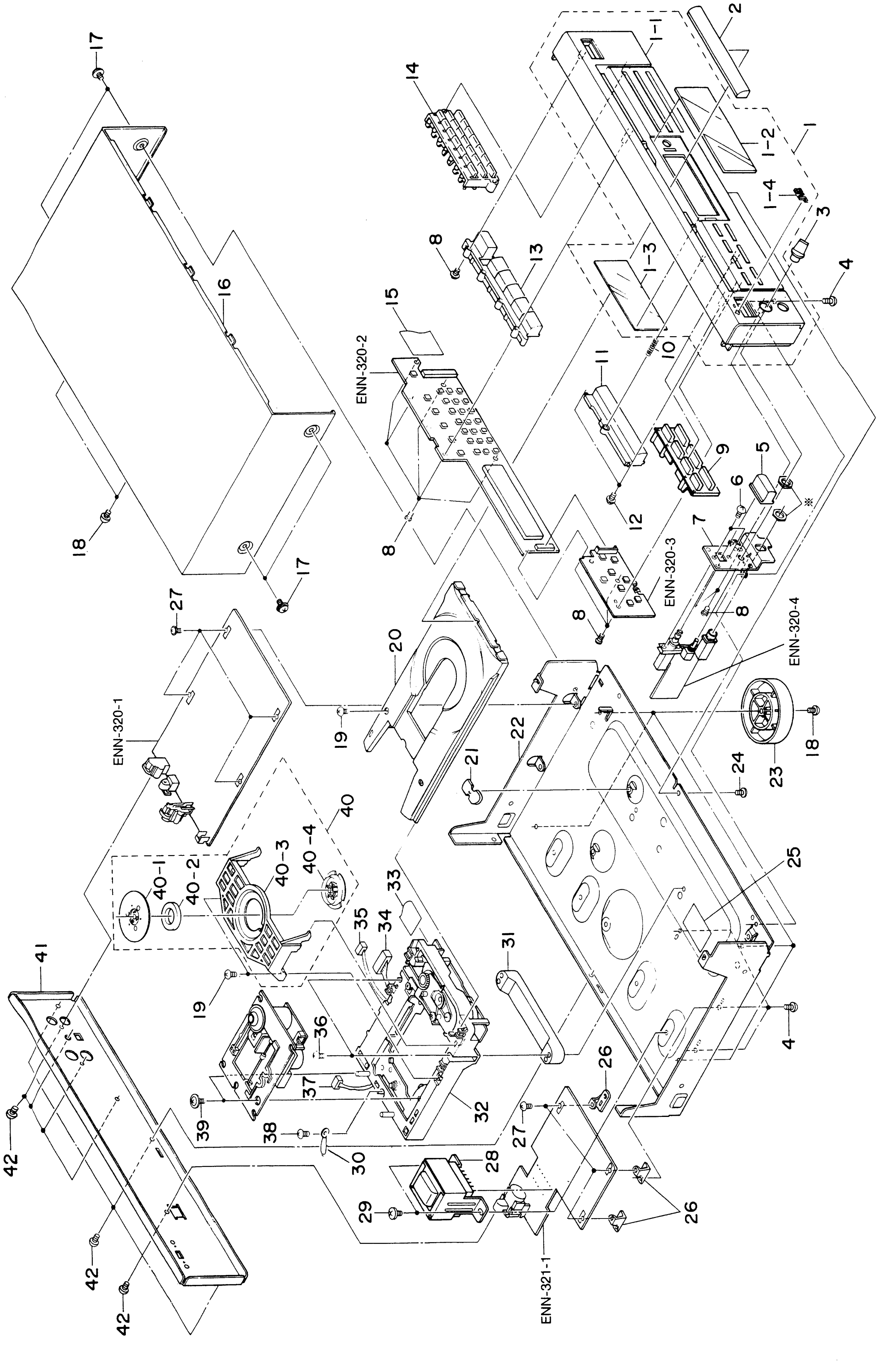
General Exploded View and Parts List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ENN-320-4
ENN-321-1
※

※ mark indicates attached part.

■Parts List

⚠	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	EFP-XLZ452BKE(S	Front Panel Ass'y	1		
	1-1	FSJC1001-002SS	Front Panel	1		
	1-2	E307147-008SS	Window Screen	1		
	1-3	E406285-001SS	FL Screen	1		
	1-4	E72968-001	JVC Mark	1		
	2	E307156-002SS	Fitting	1		
	3	E74179-001	Knob	1		
	4	SBSG3006Z	Screw	4		
	5	E406283-002SS	Power Button	1		
	6	SBST3006Z	Screw	2		
	7	FSKL4001-001SS	Headphone Bracket	1		
	8	SDSF2608Z	Screw	10		
	9	E307155-002SS	Push Button	1	Random	
	10	E406333-001SS	Spring	1		
	11	E307149-002SS	Button	1	Open / Close	
	12	E72405-001	Special Screw	2		
	13	E307151-004SS	Play Button	1		
	14	FSXP2001-002SS	Push Button	1	21Key	
	15	EWR1RE-25TT	Flat Cord	1	25Pin	
	16	E206906-003	Metal Cover	1		
	17	E406308-001	Special Screw	4		
	18	SBST3008M	Screw	6		
	19	SBSF3008M	Screw	3		
	20	E12289-222SS	Tray	1		
	21	E74767-101	Spacer	1		
	22	E102355-002SS	Chassis Base	1		
	23	FSYH4001-00BSS	Foot Ass'y	4		
	24	SDSF3008M	Screw	1		
	25	E406507-001	Caution Label	1		
	26	E68587-004	Circuit Board Bracket	3		
	27	SBSG3008CC	Screw	7		
⚠	28	ETP1000-70EAJ	Power Transformer	1		Except BS
⚠		ETP1000-70EAJBS	Power Transformer	1		BS
	29	E65389-002	Special Screw	2		
	30	E72018-001	Wire Clamp	1		
	31	E307158-001SS	Stand	1		
	32	———	CD Mechanism Unit Ass'y	1	See page 3-4	
	33	EWR613E-10TTJ2	Socket Wire Ass'y	1	13Pin	
	34	EWS25A-B102	Socket Wire Ass'y	1	10Pin	
	35	EWS254-B103	Socket Wire Ass'y	1	4 Pin	
	36	SBST3025Z	Screw	2		
	37	EWS256-B102	Socket Wire Ass'y	1	6Pin	
	38	SBST3008Z	Screw	1		
	39	E75871-003	Special Screw	2		
	40	E306837-001	Clamper Base Ass'y	1		
	40-1	E306836-001	Yoke	1		
	40-2	E74897-002	Magnet	1		
	40-3	E26756-001	Clamper Base	1		
	40-4	E306835-001	Clamper	1		
	41	E207326-004SS	Rear Panel	1		
	—	E307853-027	Rating Label	1		EN , EF
	—	E307853-028F	Rating Label	1		G
	42	E73273-006	Special Screw	8		
	—	E61029-005	Number Label	1		A , BS
	—	E70891-001	Class 1 Label	1		
	—	E70027-001	Approval Label	1		EN
	—	E70419-002F	F.Mark Label	1		G
	—	QZL1031-101	SEV Label	1		EF

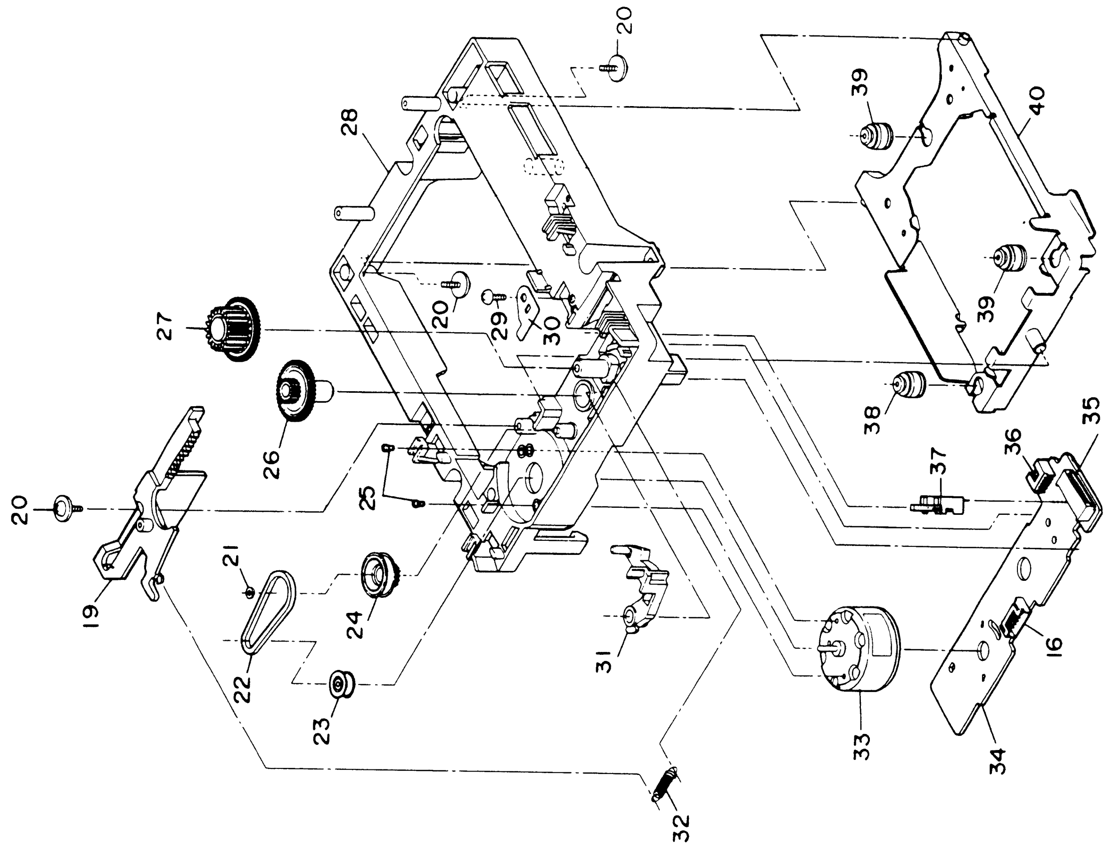
⚠ : Safety Parts

The Marks Designated Areas

A······················Australia
G······················Germany
BS······················the U.K.

EN····················Scandinavia
EF····················Continental Europe
No mark indicates all areas.

CD Mechanism Ass'y and Parts List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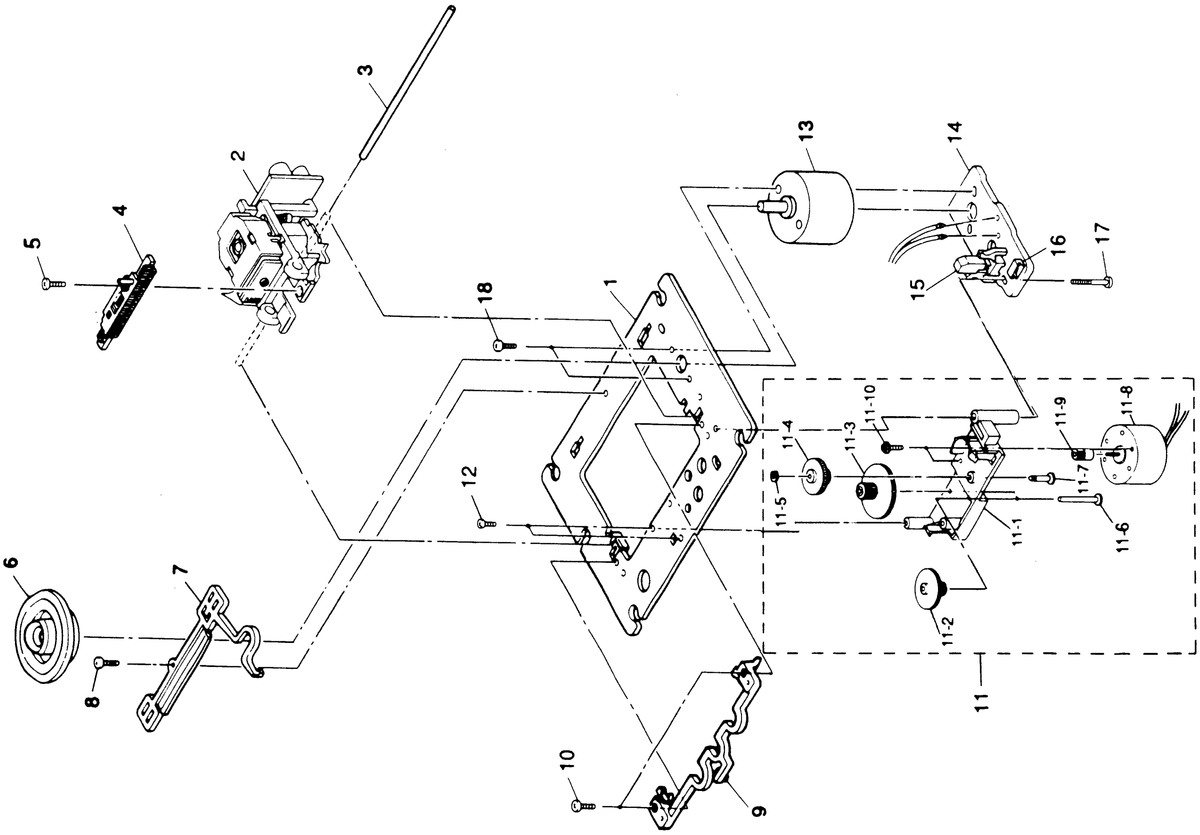
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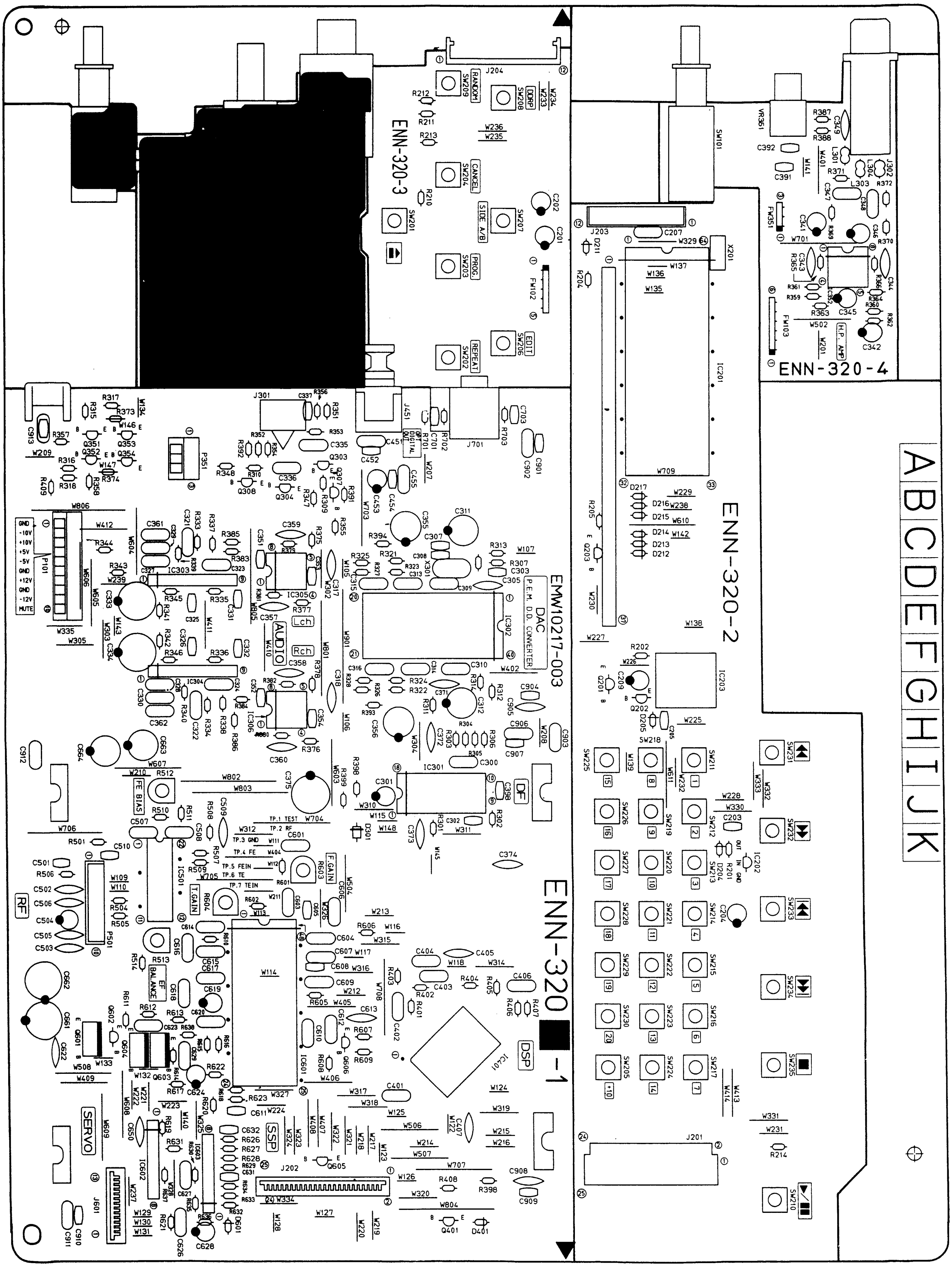
■Parts List

Item	Part Number	Part Name	Q'ty	Description	Areas
1	E26487-003	Mechanism Base	1		
2	OPTIMA-5S	Pick up Ass'y	1		
3	E74930-003	Shaft	1		
4	E306282-001	Rack Ass'y	1		
5	SPSH2050M	Screw	1		
6	E406064-002	Turn Table Ass'y	1		
7	E306275-003	Support	1		
8	SDST2005Z	Screw	1		
9	E306277-001	Holder	1		
10	SDST2004Z	Screw	2		
11	SE10351-11	Gear Ass'y	1		
11-1	E306276-001	Gear Base	1		
11-2	E75444-001	Gear	1		
11-3	E75443-001	Gear	1		
11-4	E75445-001	Gear	1		
11-5	WDM163550	Slit Washer	1		
11-6	E75494-003	Shaft	2		
11-7	E75494-002	Shaft	1		
11-8	HKN-3A6RDNV	Feed Motor	1		
11-9	E75493-001	Pinion Gear	1		
11-10	LPSH1735Z	Screw	2		
12	E72713-001	Screw	2		
13	E74539-001B	Spindle Motor	1		
14	E12114-005(S)	Circuit Board	1		
15	ESB1100-005	Leaf Switch	1	S001	
16	EMV5109-006B	6P Plug Ass'y	2	P011	
17	E75832-001	Screw	1		
18	SDSP2003N	Screw	2		
19	E306834-001	Cam	1		
20	E65923-003	Screw	3		
21	E72024-001	Speed Nut	1		
22	E75950-002	Belt	1		
23	E75984-001	Motor Pulley	1		
24	E75985-001	Gear (1)	1		
25	SPSK2640Z	Screw	2		
26	E75986-002	Gear (2)	1		
27	E75987-001	Gear (3)	1		
28	E12288-002	Loading Base	1		
29	SBSF3008Z	Screw	1		
30	E75988-001	Plate	1		
31	E306833-001	Lever	1		
32	E75989-001	Spring	1		
33	MMN-6F1LB8Q	Loading Motor	1		
34	EMW10060-002(S)	Circuit Board	1		
35	EMV7123-013R	Connector	1	13Pin	
36	EMV5109-004B	Plug Ass'y	1	4Pin	
37	ESS1200-002	Switch	1		
38	E75609-002	Insulator	1		
39	E75609-001	Insulator	2		
40	E307087-001	Elevator Base Ass'y	1		

Printed Circuit Board Ass'y and Parts List

■ENN-320☐ CD PC Board Ass'y

Note : ENN-320☐ varies according to the areas employed. See note (1) when placing an order.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REPEAT
EDIT
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EF BALANCE
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J202
J203
J204
J301
J451
J601
J701
P101
P351
P501
SW101
VR351
X201
X301
GND
-10V
+10V
+5V
-5V
GND
+12V
GND
-12V
MUTE
TP.1 TEST
TP.2 RF
TP.3 GND
TP.4 FE
TP.5 FEIN
TP.6 TE
TP.7 TEIN

Note (1)

PC Board Ass'y	Designated Areas
ENN-320 A	Australia
ENN-320 B	the U.K.
ENN-320 E	Continental Europe, Scandinavia
ENN-320 G	Germany

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q201	DTA114YS	SILICON ROHM	
	Q202	DTC114YS	SILICON ROHM	
	Q203	2SC1740S(R,S)	SILICON ROHM	
	Q303	2SC3068	SILICON SANYO	
	Q304	2SC3068	SILICON SANYO	
	Q307	2SC3068	SILICON SANYO	
	Q308	2SC3068	SILICON SANYO	
	Q351	2SD1302(S,T)	SILICON MATSUSHITA	
	Q352	2SD1302(S,T)	SILICON MATSUSHITA	
	Q401	DTA114YS	SILICON ROHM	
	Q601	2SD2037(E,F)	SILICON ROHM	
	Q602	2SA934(Q,R)	SILICON ROHM	
	Q603	2SD2037(E,F)	SILICON ROHM	
	Q604	2SB1357(E,F)	SILICON ROHM	
	Q605	DTC144ES	SILICON ROHM	
	Q606	2SC1740S(R,S)	SILICON ROHM	

⚠ : SAFETY PARTS

I. C. s

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	IC201	MN171202JPJ1	I.C. MATSUSHITA	
	IC202	MN1281(P,Q)	I.C. MATSUSHITA	
	IC203	SPS-420-1	I.C. SANYO	
	IC301	SM5840DP	I.C. KANEMATSU	
	IC302	JCE4501	I.C. MATSUSHITA	
	IC303	UPC4570HA	I.C. NEC	
	IC304	UPC4570HA	I.C. NEC	
	IC305	UPC4570C	I.C. NEC	
	IC306	UPC4570C	I.C. NEC	
	IC352	M5218AP	I.C. MITSUBISHI	
	IC401	CXD2500AQ	I.C. 1680	
	IC501	CXA1571S	I.C. 1680	
	IC601	CXA1372S	I.C. 1680	
	IC602	STA341M(A)	I.C. SANKEN	
	IC603	M5218AL	I.C. MITSUBISHI	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	D204	1SS133	SILICON ROHM	
	D205	1SS133	SILICON ROHM	
	D211	1SS119	SILICON HITACHI	
	D212	1SS119	SILICON HITACHI	
	D213	1SS119	SILICON HITACHI	
	D214	1SS119	SILICON HITACHI	
	D215	1SS119	SILICON HITACHI	
	D216	1SS119	SILICON HITACHI	
	D217	1SS119	SILICON HITACHI	
	D401	1SS133	SILICON ROHM	
	D601	1SS133	SILICON ROHM	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C201	QER51HM-475	4.7MF 50V ELECTRO	
	C202	QER51HM-475	4.7MF 50V ELECTRO	
	C203	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C204	QER50JM-107	100MF 6.3V ELECTRO	
	C205	QCBB1HK-331	330PF 50V CERAMIC	
	C207	QCZ0205-155	1.5MF 25V CERAMIC	
	C209	QER50JM-476	47MF 6.3V ELECTRO	
	C300	QFV81HJ-104	0.1MF 50V T.FILM	
	C301	QETB1AM-107	100MF 10V ELECTRO	
	C302	QCHB1EZ-223	0.022MF 25V CERAMIC	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C303	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C305	QCS21HJ-470	47PF 50V CERAMIC	
	C307	QCT30CH-120	12PF 50V CERAMIC	
	C308	QCT30CH-3R3	3.3PF 50V CERAMIC	
	C309	QCZ0205-155	1.5MF 25V CERAMIC	
	C310	QCZ0205-155	1.5MF 25V CERAMIC	
	C311	QETB1AM-107	100MF 10V ELECTRO	
	C312	QETB1AM-107	100MF 10V ELECTRO	
	C313	QCZ0205-155	1.5MF 25V CERAMIC	
	C314	QCZ0205-155	1.5MF 25V CERAMIC	
	C315	QCZ0205-155	1.5MF 25V CERAMIC	
	C316	QCZ0205-155	1.5MF 25V CERAMIC	
	C317	QCS21HJ-681	680PF 50V CERAMIC	
	C318	QCS21HJ-681	680PF 50V CERAMIC	
	C321	QFN81HJ-202	2000PF 50V MYLAR	
	C322	QFN81HJ-202	2000PF 50V MYLAR	
	C323	QFN81HJ-202	2000PF 50V MYLAR	
	C324	QFN81HJ-202	2000PF 50V MYLAR	
	C325	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C326	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C327	QFN81HJ-392	3900PF 50V MYLAR	
	C328	QFN81HJ-392	3900PF 50V MYLAR	
	C329	QFN81HJ-223	0.022MF 50V MYLAR	
	C330	QFN81HJ-223	0.022MF 50V MYLAR	
	C331	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C332	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C333	EET2502-476N	47MF ELECTRO	
	C334	EET2502-476N	47MF ELECTRO	
	C335	QFN81HJ-822	8200PF 50V MYLAR	
	C336	QFN81HJ-822	8200PF 50V MYLAR	
	C337	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C341	QETB1HM-475	4.7MF 50V ELECTRO	
	C342	QETB1HM-475	4.7MF 50V ELECTRO	
	C343	QCS21HJ-560	56PF 50V CERAMIC	
	C344	QCS21HJ-560	56PF 50V CERAMIC	
	C345	QETB1CM-476	47MF 16V ELECTRO	
	C346	QETB1CM-476	47MF 16V ELECTRO	
	C347	QFN81HJ-103	0.01MF 50V MYLAR	
	C348	QFN81HJ-103	0.01MF 50V MYLAR	
	C349	QCS21HJ-471	470PF 50V CERAMIC	
	C351	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C352	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C353	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C354	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C355	QETB0JM-477	470MF 6.3V ELECTRO	
	C356	QETB0JM-477	470MF 6.3V ELECTRO	
	C357	QCS21HJ-471	470PF 50V CERAMIC	
	C358	QCS21HJ-471	470PF 50V CERAMIC	
	C359	QCS21HJ-471	470PF 50V CERAMIC	
	C360	QCS21HJ-471	470PF 50V CERAMIC	
	C361	QFN81HJ-392	3900PF 50V MYLAR	
	C362	QFN81HJ-392	3900PF 50V MYLAR	
	C371	QCS21HJ-5R0	5PF 50V CERAMIC	
	C372	QCS21HJ-5R0	5PF 50V CERAMIC	
	C373	QCS21HJ-5R0	5PF 50V CERAMIC	
	C374	QCS21HJ-5R0	5PF 50V CERAMIC	
	C391	QCXB1CM-182	1800PF 16V CERAMIC	
	C392	QCXB1CM-182	1800PF 16V CERAMIC	
	C398	QCBB1HK-221	220PF 50V CERAMIC	
	C401	QCZ0205-155	1.5MF 25V CERAMIC	
	C402	QFN81HJ-473	0.047MF 50V MYLAR	
	C403	QFV81HJ-104	0.1MF 50V T.FILM	
	C404	QFN81HJ-152	1500PF 50V MYLAR	
	C405	QCF21HP-102	1000PF 50V CERAMIC	
	C406	QCZ0205-155	1.5MF 25V CERAMIC	
	C407	QCS21HJ-680	68PF 50V CERAMIC	
	C451	QCZ0205-155	1.5MF 25V CERAMIC	
	C454	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C501	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C502	QCS21HJ-100	10PF 50V CERAMIC	
	C503	QCS21HJ-100	10PF 50V CERAMIC	
	C504	QETB1AM-476	47MF 10V ELECTRO	
	C505	QCS21HJ-820	82PF 50V CERAMIC	
	C506	QCS21HJ-101	100PF 50V CERAMIC	
	C507	QCZ0205-155	1.5MF 25V CERAMIC	
	C508	QCZ0205-155	1.5MF 25V CERAMIC	
	C509	QCS21HJ-220	22PF 50V CERAMIC	
	C510	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C601	QFN81HJ-182	1800PF 50V MYLAR	
	C603	QFN81HJ-222	2200PF 50V MYLAR	
	C604	QFN81HJ-222	2200PF 50V MYLAR	
	C605	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C606	QFN81HJ-333	0.033MF 50V MYLAR	
	C607	QFN81HJ-103	0.01MF 50V MYLAR	
	C608	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C609	QFN81HJ-333	0.033MF 50V MYLAR	
	C610	QCZ0205-155	1.5MF 25V CERAMIC	
	C611	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C612	QFV81HJ-104	0.1MF 50V T.FILM	
	C613	QCS21HJ-471	470PF 50V CERAMIC	
	C614	QFN81HJ-104	0.1MF 50V MYLAR	
	C615	QFN81HJ-333	0.033MF 50V MYLAR	
	C616	QFN81HJ-473	0.047MF 50V MYLAR	
	C617	QFN81HJ-473	0.047MF 50V MYLAR	
	C618	QFN81HJ-473	0.047MF 50V MYLAR	

⚠ : SAFETY PARTS

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C619	QETB1HM-475	4.7MF 50V ELECTRO	
	C620	QFN81HJ-104	0.1MF 50V MYLAR	
	C622	QCF21HP-223	0.022MF 50V CERAMIC	
	C623	QFN81HJ-473	0.047MF 50V MYLAR	
	C624	QETB1EM-106	10MF 25V ELECTRO	
	C626	QFN81HJ-183	0.018MF 50V MYLAR	
	C627	QFN81HJ-103	0.01MF 50V MYLAR	
	C628	QETB1HM-475	4.7MF 50V ELECTRO	
	C629	QFN81HJ-333	0.033MF 50V MYLAR	
	C631	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C632	QCHB1EZ-223	0.022MF 25V CERAMIC	
	C661	QETB1CM-477	470MF 16V ELECTRO	
	C662	QETB1CM-477	470MF 16V ELECTRO	
	C701	QCBB1HK-101	100PF 50V CERAMIC	
	C902	QCS21HJ-101	100PF 50V CERAMIC	
	C905	QCT26CH-180	18PF 50V CERAMIC	
	C908	QCT26CH-180	18PF 50V CERAMIC	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R201	QRD167J-821	820 1/6W CARBON	
	R202	QRD167J-472	4.7K 1/6W CARBON	
	R204	QRD167J-471	470 1/6W CARBON	
	R205	QRD167J-103	10K 1/6W CARBON	
	R210	QRD167J-473	47K 1/6W CARBON	
	R211	QRD167J-473	47K 1/6W CARBON	
	R212	QRD167J-473	47K 1/6W CARBON	
	R213	QRD167J-473	47K 1/6W CARBON	
	R214	QRD167J-473	47K 1/6W CARBON	
	R301	QRD167J-101	100 1/6W CARBON	
	R302	QRD167J-472	4.7K 1/6W CARBON	
	R303	QRD167J-561	560 1/6W CARBON	
	R304	QRD167J-561	560 1/6W CARBON	
	R305	QRD167J-561	560 1/6W CARBON	
	R306	QRD167J-561	560 1/6W CARBON	
	R307	QRD167J-103	10K 1/6W CARBON	
	R309	QRD167J-101	100 1/6W CARBON	
	R310	QRD167J-101	100 1/6W CARBON	
	R311	QRD167J-181	180 1/6W CARBON	
	R313	QRD167J-2R2	2.2 1/6W CARBON	
	R314	QRD167J-2R2	2.2 1/6W CARBON	
	R315	QRD167J-103	10K 1/6W CARBON	
	R316	QRD167J-103	10K 1/6W CARBON	
⚠	R321	QRV144F-1802	18K 1/4W M.FILM	
⚠	R322	QRV144F-1802	18K 1/4W M.FILM	
⚠	R323	QRV144F-1802	18K 1/4W M.FILM	
⚠	R324	QRV144F-1802	18K 1/4W M.FILM	
⚠	R325	QRV144F-1802	18K 1/4W M.FILM	
⚠	R326	QRV144F-1802	18K 1/4W M.FILM	
⚠	R327	QRV144F-1802	18K 1/4W M.FILM	
⚠	R328	QRV144F-1802	18K 1/4W M.FILM	
⚠	R333	QRV144F-1501	1.5K 1/4W M.FILM	
⚠	R334	QRV144F-1501	1.5K 1/4W M.FILM	
⚠	R335	QRV144F-1501	1.5K 1/4W M.FILM	
⚠	R336	QRV144F-1501	1.5K 1/4W M.FILM	
	R337	QRD167J-561	560 1/6W CARBON	
	R338	QRD167J-561	560 1/6W CARBON	
	R339	QRD167J-511	510 1/6W CARBON	
	R340	QRD167J-511	510 1/6W CARBON	
	R341	QRD167J-103	10K 1/6W CARBON	
	R342	QRD167J-103	10K 1/6W CARBON	
	R343	QRD167J-273	27K 1/6W CARBON	
	R344	QRD167J-273	27K 1/6W CARBON	
	R345	QRD167J-821	820 1/6W CARBON	
	R346	QRD167J-821	820 1/6W CARBON	
	R347	QRD167J-101	100 1/6W CARBON	
	R348	QRD167J-101	100 1/6W CARBON	
	R351	QRD167J-103	10K 1/6W CARBON	
	R352	QRD167J-103	10K 1/6W CARBON	
	R353	QRD167J-151	150 1/6W CARBON	
	R354	QRD167J-151	150 1/6W CARBON	
	R355	QRD167J-473	47K 1/6W CARBON	
	R356	QRD167J-684	680K 1/6W CARBON	
	R357	QRD167J-102	1K 1/6W CARBON	
	R358	QRD167J-102	1K 1/6W CARBON	
	R359	QRD167J-473	47K 1/6W CARBON	
	R360	QRD167J-473	47K 1/6W CARBON	
	R361	QRD167J-103	10K 1/6W CARBON	
	R362	QRD167J-103	10K 1/6W CARBON	
	R363	QRD167J-273	27K 1/6W CARBON	
	R364	QRD167J-273	27K 1/6W CARBON	
	R365	QRD167J-623	62K 1/6W CARBON	
	R366	QRD167J-623	62K 1/6W CARBON	
	R369	QRD167J-680	68 1/6W CARBON	
	R370	QRD167J-680	68 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R371	QRD167J-390	39 1/6W CARBON	
	R372	QRD167J-390	39 1/6W CARBON	
	R375	QRD167J-101	100 1/6W CARBON	
	R376	QRD167J-101	100 1/6W CARBON	
	R377	QRD167J-101	100 1/6W CARBON	
	R378	QRD167J-101	100 1/6W CARBON	
	R379	QRD167J-912	9.1K 1/6W CARBON	
	R380	QRD167J-912	9.1K 1/6W CARBON	
	R381	QRD167J-912	9.1K 1/6W CARBON	
	R382	QRD167J-912	9.1K 1/6W CARBON	
⚠	R383	QRV144F-1601	1.6K 1/4W M.FILM	
⚠	R384	QRV144F-1601	1.6K 1/4W M.FILM	
⚠	R385	QRV144F-1601	1.6K 1/4W M.FILM	
⚠	R386	QRV144F-1601	1.6K 1/4W M.FILM	
	R387	QRD167J-101	100 1/6W CARBON	
	R388	QRD167J-101	100 1/6W CARBON	
	R391	QRD167J-103	10K 1/6W CARBON	
	R392	QRD167J-103	10K 1/6W CARBON	
	R393	QRD167J-101	100 1/6W CARBON	
	R394	QRD167J-101	100 1/6W CARBON	
	R398	QRD167J-102	1K 1/6W CARBON	
	R399	QRD167J-101	100 1/6W CARBON	
	R401	QRD167J-332	3.3K 1/6W CARBON	
	R402	QRD167J-682	6.8K 1/6W CARBON	
	R403	QRD167J-103	10K 1/6W CARBON	
	R404	QRD167J-103	10K 1/6W CARBON	
	R405	QRD167J-102	1K 1/6W CARBON	
	R406	QRD167J-102	1K 1/6W CARBON	
	R407	QRD167J-681	680 1/6W CARBON	
	R408	QRD167J-103	10K 1/6W CARBON	
	R409	QRD167J-331	330 1/6W CARBON	
	R501	QRD167J-102	1K 1/6W CARBON	
	R504	QRD167J-183	18K 1/6W CARBON	
	R505	QRD167J-183	18K 1/6W CARBON	
	R506	QRD167J-121	120 1/6W CARBON	
	R507	QRD167J-103	10K 1/6W CARBON	
	R508	QRD167J-332	3.3K 1/6W CARBON	
	R509	QRD167J-822	8.2K 1/6W CARBON	
	R510	QRD167J-113	11K 1/6W CARBON	
	R511	QRD167J-104	100K 1/6W CARBON	
	R512	QVPA601-203A	20K VARIABLE	
	R513	QVPA601-203A	20K VARIABLE	
	R514	QRD167J-103	10K 1/6W CARBON	
	R601	QRD167J-472	4.7K 1/6W CARBON	
	R602	QRD167J-472	4.7K 1/6W CARBON	
	R603	QVPA601-203A	20K VARIABLE	
	R604	QVPA601-203A	20K VARIABLE	
	R605	QRD167J-102	1K 1/6W CARBON	
	R606	QRD167J-104	100K 1/6W CARBON	
	R607	QRD167J-103	10K 1/6W CARBON	
	R608	QRD167J-273	27K 1/6W CARBON	
	R609	QRD167J-273	27K 1/6W CARBON	
	R610	QRD167J-224	220K 1/6W CARBON	
	R611	QRD167J-2R2	2.2 1/6W CARBON	
	R612	QRD167J-823	82K 1/6W CARBON	
	R613	QRD167J-104	100K 1/6W CARBON	
	R614	QRD167J-2R2	2.2 1/6W CARBON	
	R615	QRD167J-224	220K 1/6W CARBON	
	R616	QRD167J-333	33K 1/6W CARBON	
	R617	QRD167J-103	10K 1/6W CARBON	
	R618	QRD167J-514	510K 1/6W CARBON	
	R619	QRD167J-2R2	2.2 1/6W CARBON	
	R620	QRD167J-183	18K 1/6W CARBON	
	R621	QRD167J-363	36K 1/6W CARBON	
	R622	QRD167J-124	120K 1/6W CARBON	
	R623	QRD167J-472	4.7K 1/6W CARBON	
	R626	QRD167J-153	15K 1/6W CARBON	
	R627	QRD167J-333	33K 1/6W CARBON	
	R628	QRD167J-752	7.5K 1/6W CARBON	
	R629	QRD167J-752	7.5K 1/6W CARBON	
	R630	QRD167J-333	33K 1/6W CARBON	
	R631	QRD167J-221	220 1/6W CARBON	
	R632	QRD167J-513	51K 1/6W CARBON	
	R633	QRD167J-513	51K 1/6W CARBON	
	R634	QRD167J-683	68K 1/6W CARBON	
	R635	QRD167J-683	68K 1/6W CARBON	
	R636	QRD167J-684	680K 1/6W CARBON	
	R637	QRD167J-221	220 1/6W CARBON	
	R638	QRD167J-184	180K 1/6W CARBON	
	R701	QRD167J-470	47 1/6W CARBON	
	R702	QRD167J-221	220 1/6W CARBON	
	R703	QRD167J-101	100 1/6W CARBON	
	VR351	QVAB99A-E24C	20K VARIABLE	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10217-003	CIRCUIT BOARD	
		E306805-010	SPACER	
		E306951-221SS	FL DISPLAY HOLDER	
		E406604-001	EARTH BRACKET	
		E70225-002	EARTH PLATE	
		E70859-001	EARTH PLATE	
		E75464-001	EARTH PLATE	
	J201	EMV7123-025R	CONNECTOR(25PIN)	
	J202	EMV7123-025	CONNECTOR(25PIN)	
	J203	EMV7120-012	CONNECTOR(12PIN)	
	J204	EMV5120-012	PLUG ASSY(12PIN)	
	J301	EMN00TV-219AJ2	2P PIN JACK	
	J302	QMS6302-131	HEADPHONE JACK	
	J451	GP1F32T	OPTICAL JACK(OPT.OUT)	
	J601	EMV7123-013	CONNECTOR(13PIN)	
	J701	QMS3501-020	MINI JACK(COMPULINK)	
	L301	EQL4004-1R0	INDUCTOR	
	L303	EQL4004-1R0	INDUCTOR	
	L304	EQL4004-1R0	INDUCTOR	
	P101	VMC0107-010	WIRE CONNECTOR(10PIN)	
	P351	VMC0107-003	CONNECT TERMINAL(3PIN)	
	P501	EMV5109-010A	PLUG ASSY(10PIN)	
	X201	ECX0060-000EM	RESONATOR	
	X301	ECX0169-344KL	RESONATOR	
	FL201	ELU0001-136	FL TUBE	
	FW102	EWR35B-16LST	FLAT WIRE(5PIN)	
	FW103	EWR36B-13LST	FLAT WIRE(6PIN)	
	FW351	EWR33B-45LST	FLAT WIRE(3PIN)	
	SW101	QST4101-E20	PUSH SWITCH(POWER ON/OFF)	
	SW201	ESP0001-018	TACT SWITCH(OPEN/CLOSE)	
	SW202	ESP0001-018	TACT SWITCH(REPEAT)	
	SW203	ESP0001-018	TACT SWITCH(PROGRAM)	
	SW204	ESP0001-018	TACT SWITCH(CANCEL)	
	SW205	ESP0001-018	TACT SWITCH(+10)	
	SW206	ESP0001-018	TACT SWITCH(EDIT)	

⚠ : SAFETY PARTS

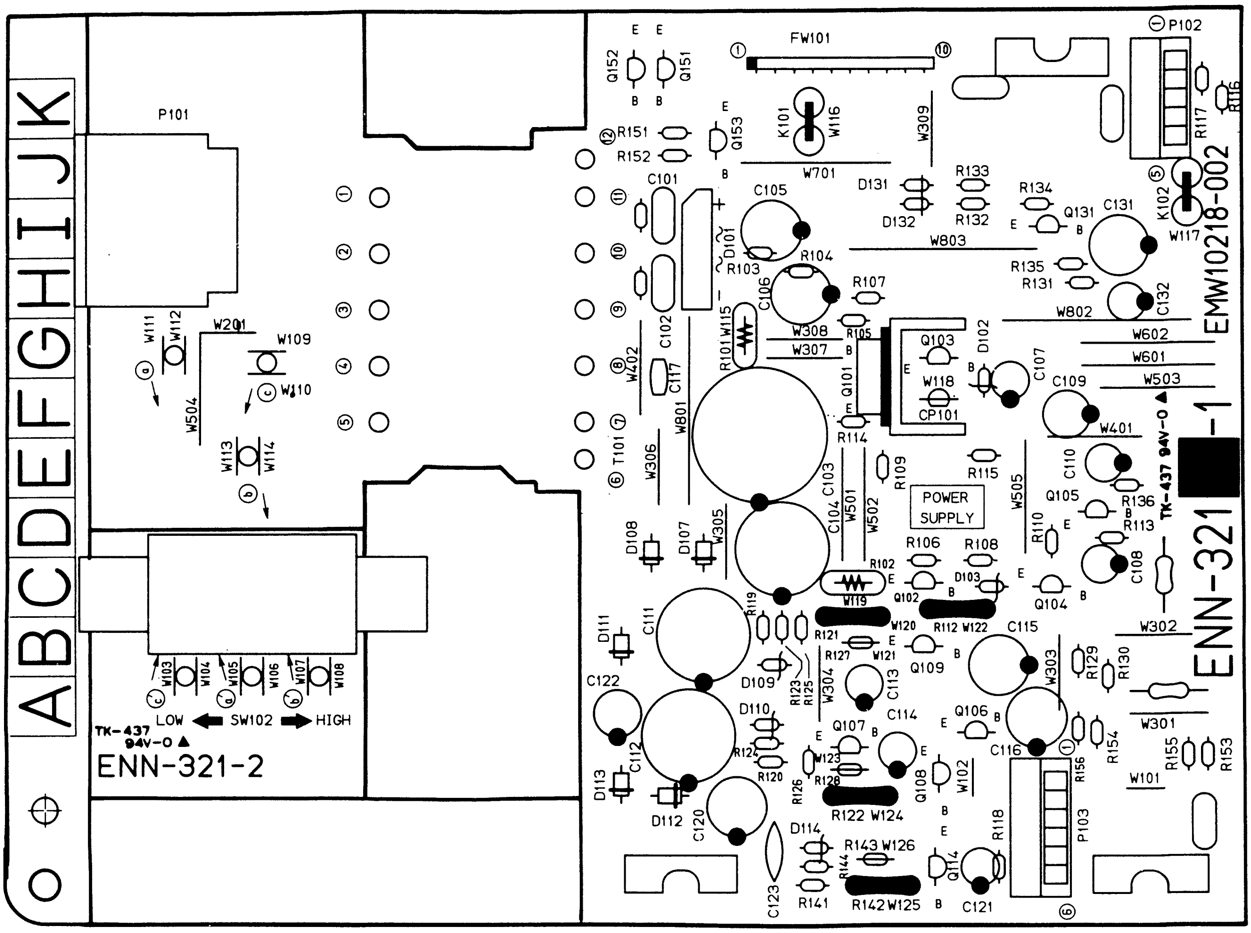
Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	SW207	ESP0001-018	TACT SWITCH(A/B)	
	SW208	ESP0001-018	TACT SWITCH(DDRP)	
	SW209	ESP0001-018	TACT SWITCH(RANDOM)	
	SW210	ESP0001-018	TACT SWITCH(PLAY/PAUSE)	
	SW211	ESP0001-018	TACT SWITCH(1)	
	SW212	ESP0001-018	TACT SWITCH(2)	
	SW213	ESP0001-018	TACT SWITCH(3)	
	SW214	ESP0001-018	TACT SWITCH(4)	
	SW215	ESP0001-018	TACT SWITCH(5)	
	SW216	ESP0001-018	TACT SWITCH(6)	
	SW217	ESP0001-018	TACT SWITCH(7)	
	SW218	ESP0001-018	TACT SWITCH(8)	
	SW219	ESP0001-018	TACT SWITCH(9)	
	SW220	ESP0001-018	TACT SWITCH(10)	
	SW221	ESP0001-018	TACT SWITCH(11)	
	SW222	ESP0001-018	TACT SWITCH(12)	
	SW223	ESP0001-018	TACT SWITCH(13)	
	SW224	ESP0001-018	TACT SWITCH(14)	
	SW225	ESP0001-018	TACT SWITCH(15)	
	SW226	ESP0001-018	TACT SWITCH(16)	
	SW227	ESP0001-018	TACT SWITCH(17)	
	SW228	ESP0001-018	TACT SWITCH(18)	
	SW229	ESP0001-018	TACT SWITCH(19)	
	SW230	ESP0001-018	TACT SWITCH(20)	
	SW231	ESP0001-018	TACT SWITCH(FOWARD SCAN)	
	SW232	ESP0001-018	TACT SWITCH(BACKWARD SCAN)	
	SW233	ESP0001-018	TACT SWITCH(BACKWARD SKIP)	
	SW234	ESP0001-018	TACT SWITCH(FOWARD SKIP)	
	SW235	ESP0001-018	TACT SWITCH(STOP)	

⚠ : SAFETY PARTS

■ENN-321 ☐ Power Supply PC Board Ass'y

Note : ENN-321 ☐ varies according to the areas employed. See note (1) when placing an order.


A
B
C
D
E
F
G
H
I
J
K
P101
W111
W112
W201
W109
W110
W504
W113
W114
W103
W104
W105
W106
W107
W108
TK-437 94V-0 ▲
LOW
SW102
HIGH
ENN-321-2
FW101
P102
Q152
Q151
Q153
R151
R152
C101
C102
C105
K101
W116
W701
W309
D131
D132
R133
R132
R134
Q131
C131
K102
W117
R117
R116
D101
R103
R104
C106
R107
W803
R135
R131
W802
C132
W602
W601
W503
R101
W115
W308
W307
R105
Q103
Q101
W118
CP101
D102
C107
C109
W401
W402
C117
W801
T101
W306
R114
C103
C104
W501
W502
R109
POWER SUPPLY
R115
W505
Q105
C110
R136
R113
R110
R106
R108
R102
W119
Q102
D103
Q104
C108
D108
D107
W305
D111
C111
R119
R121
R127
W120
R112
W122
W121
C115
W302
C113
Q109
W303
R129
R130
C122
D109
R123
R125
W304
C114
Q106
Q107
C116
W301
R154
R155
R153
D110
R124
R120
R126
W123
R128
Q108
W102
R156
W101
D113
C112
D112
C120
R122
W124
R118
P103
D114
R143
W126
R144
Q114
C123
R141
R142
W125
C121
EMW10218-002
TK-437 94V-0 ▲
ENN-321-1

Note (1)

PC Board Ass'y	Designated Areas
ENN-321 A	Australia
ENN-321 B BS	the U.K.
ENN-321 E	Continental Europe , Scandinavia
ENN-321 G	Germany

Transistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	Q101	2SB1187(E,F)	SILICON ROHM	
	Q102	2SC2060(Q,R)	SILICON ROHM	
	Q103	2SD1302(S,T)	SILICON MATSUSHITA	
	Q104	2SA933S(R,S)	SILICON ROHM	
	Q105	2SD1302(S,T)	SILICON MATSUSHITA	
	Q106	DTA114YS	SILICON ROHM	
	Q107	DTC114YS	SILICON ROHM	
	Q108	2SA934(Q,R)	SILICON ROHM	
	Q109	2SC2060(Q,R)	SILICON ROHM	
	Q114	2SA733A(P,Q)	SILICON NEC	
	Q131	2SA933S(R,S)	SILICON ROHM	
	Q151	2SD2144S(VW)	SILICON ROHM	
	Q152	2SD2144S(VW)	SILICON ROHM	
	Q153	DTA114YS	SILICON ROHM	

⚠ : SAFETY PARTS

Diodes

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
⚠	D101	S1VB20F	SILICON SINDENGEN	
	D102	MTZ5.6JA	ZENER ROHM	
	D103	MTZ5.6JA	ZENER ROHM	
⚠	D107	ERA15-02L19	SILICON KYOUDOU	
⚠	D108	ERA15-02L19	SILICON KYOUDOU	
	D109	MTZ13JA	ZENER ROHM	
	D110	MTZ13JA	ZENER ROHM	
⚠	D111	ERA15-02L19	SILICON KYOUDOU	
⚠	D112	ERA15-02L19	SILICON KYOUDOU	
⚠	D113	ERA15-02L19	SILICON KYOUDOU	
	D114	MTZ24JC	ZENER ROHM	
	D131	1SS133	SILICON ROHM	
	D132	1SS133	SILICON ROHM	

⚠ : SAFETY PARTS

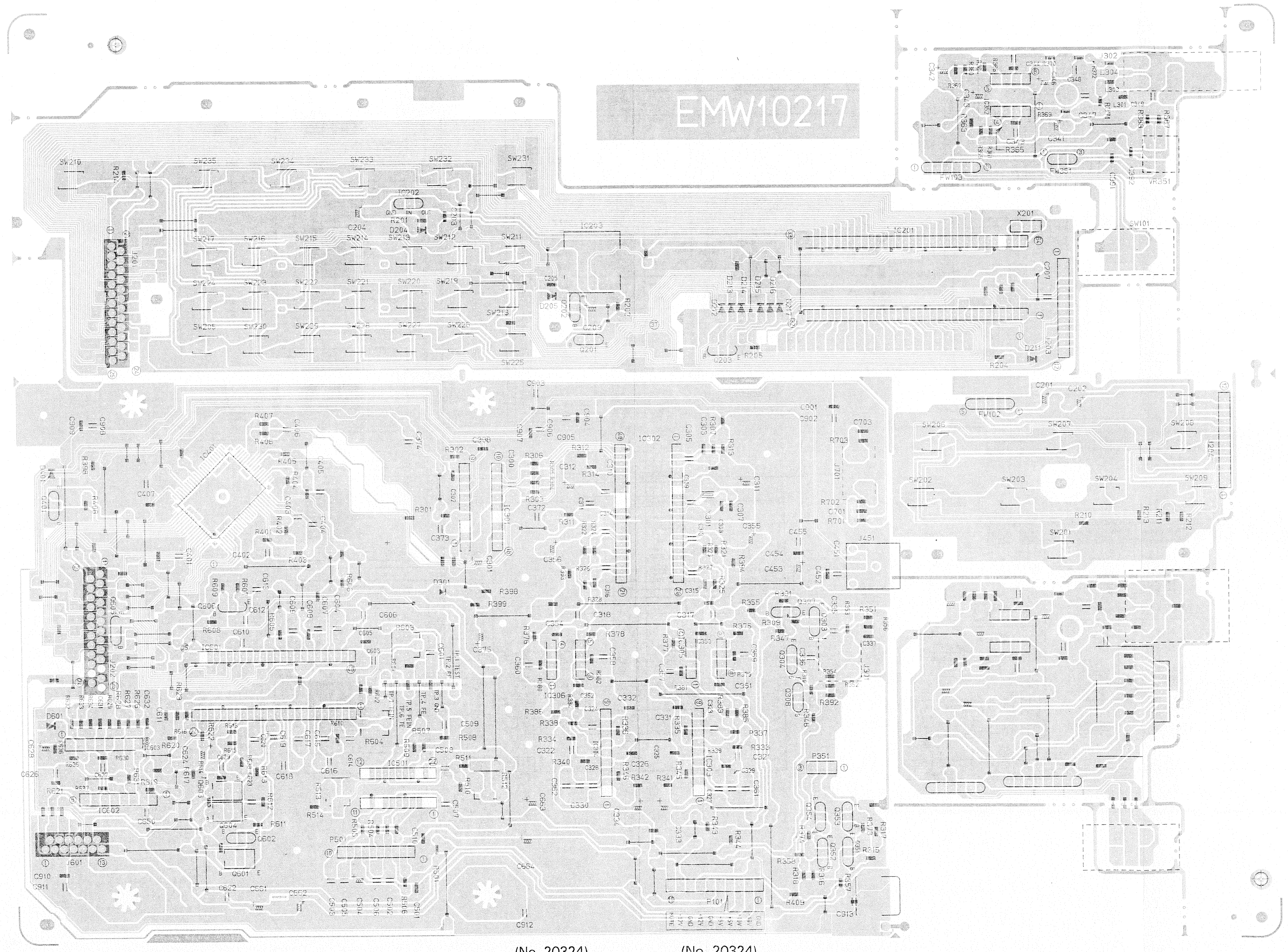
Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C101	QFV81HJ-104	0.1MF 50V T.FILM	
	C102	QFV81HJ-104	0.1MF 50V T.FILM	
	C103	QETB1CM-338	3300MF 16V ELECTRO	
	C104	QETB1CM-228	2200MF 16V ELECTRO	
	C107	QETD1HM-225	2.2MF 50V ELECTRO	
	C108	QETB1HM-225	2.2MF 50V ELECTRO	
	C109	QETB0JM-227	220MF 6.3V ELECTRO	
	C110	QETB1AM-476	47MF 10V ELECTRO	
	C111	QETB1EM-108	1000MF 25V ELECTRO	
	C112	QETB1EM-108	1000MF 25V ELECTRO	

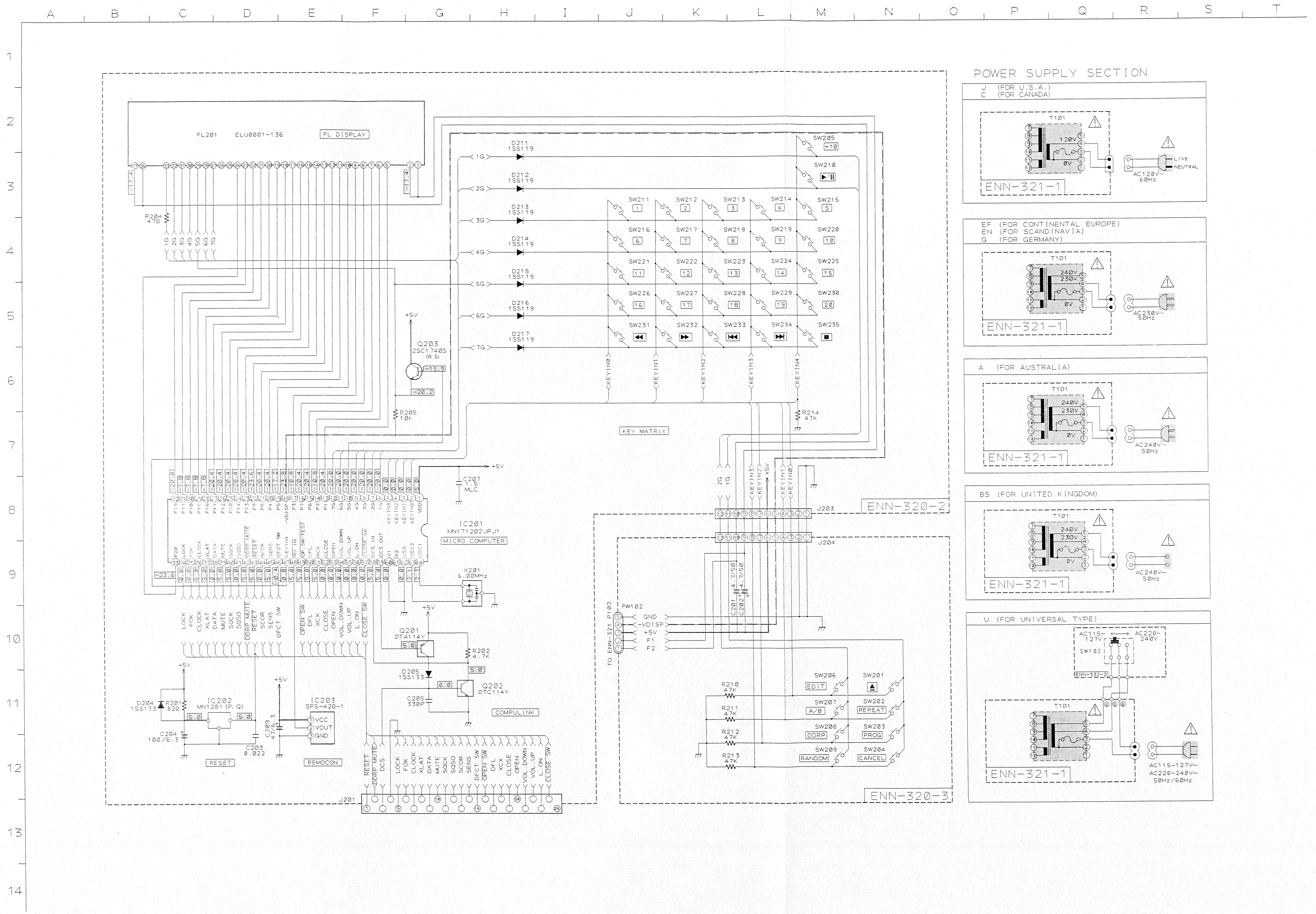
⚠ : SAFETY PARTS

Printed Circuit Board

■ CD P.C.B. (ENN-320)


EMW10217
IC201
IC202
IC203
IC301
IC302
IC303
IC306
IC401
IC501
IC601
IC602
X201
SW101
J451
P101
P501
P351
J201
J601
FW102
FW103
FW351
VR351
SW201
SW202
SW203
SW204
SW205
SW206
SW207
SW208
SW209
SW210
SW211
SW212
SW213
SW214
SW215
SW216
SW217
SW218
SW219
SW220
SW221
SW222
SW224
SW225
SW226
SW227
SW228
SW229
SW230
SW231
SW232
SW233
SW234
SW235

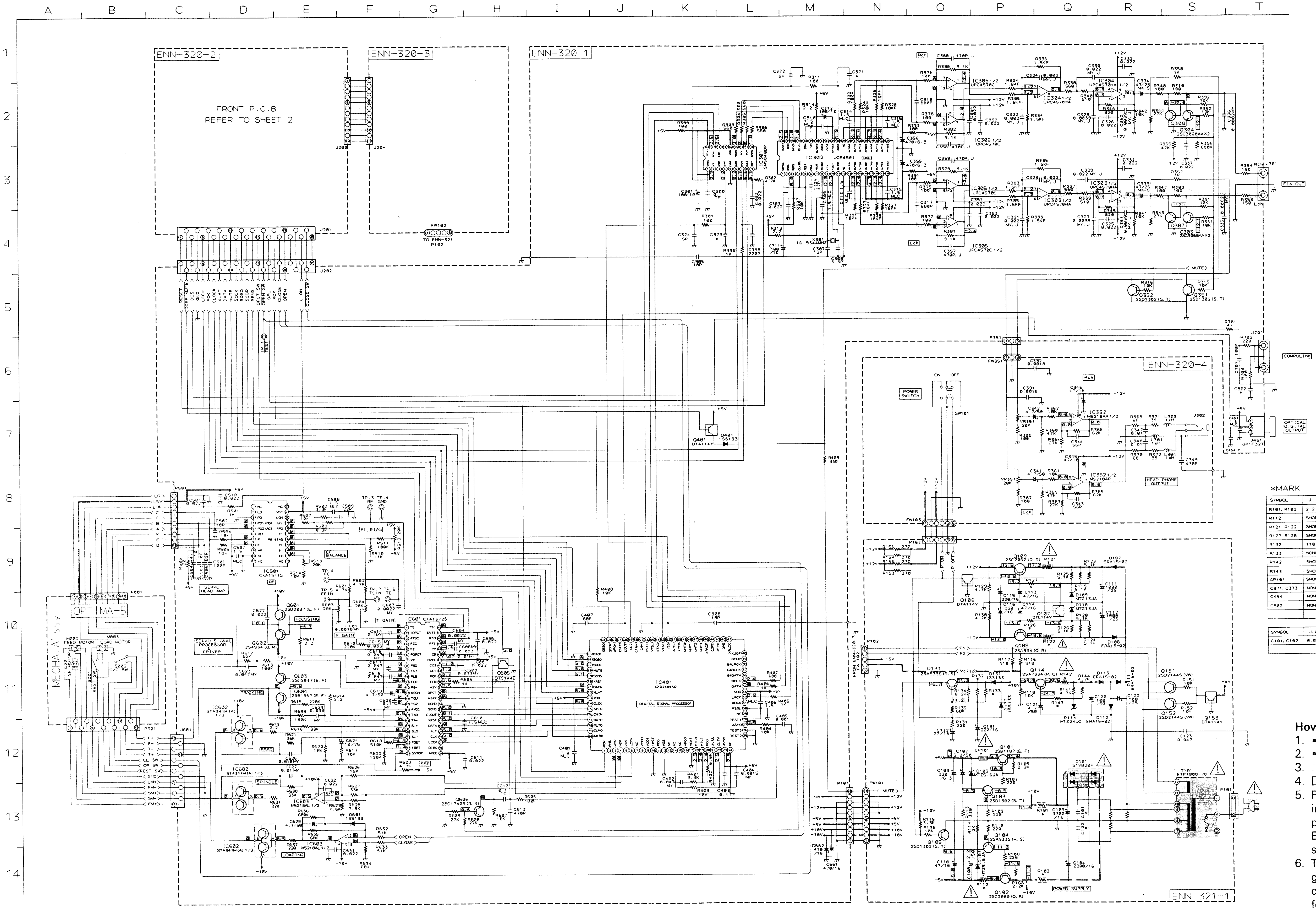
2. System Control & FL Section


FL201 ELU0001-136
FL DISPLAY
R204 470
D211 1SS119
D212 1SS119
D213 1SS119
D214 1SS119
D215 1SS119
D216 1SS119
D217 1SS119
1G 2G 3G 4G 5G 6G 7G
SW205 +10
SW210 ▶/II
SW211 1
SW212 2
SW213 3
SW214 4
SW215 5
SW216 6
SW217 7
SW218 8
SW219 9
SW220 10
SW221 11
SW222 12
SW223 13
SW224 14
SW225 15
SW226 16
SW227 17
SW228 18
SW229 19
SW230 20
SW231 ◀◀
SW232 ▶▶
SW233 |◀◀
SW234 ▶▶|
SW235 ■
KEYIN0 KEYIN1 KEYIN2 KEYIN3 KEYIN4
R214 47K
KEY MATRIX
+5V
Q203 2SC1740S (R,S)
R205 10K
C207 1.5 MLC
IC201 MN171202JPJ1
MICRO COMPUTER
X201 6.00MHz
Q201 DTA114Y
R202 4.7K
D205 1SS133
Q202 DTC114Y
C205 330P
COMPULINK
D204 1SS133
R201 820
IC202 MN1281 (P, Q)
C204 100/6.3
C203 0.022
RESET
C209 47/6.3
IC203 SPS-420-1
VCC VOUT GND
REMOCON
LOCK FOK CLOCK XLAT DATA MUTE SQCK SQSO DDRP MUTE RESET SCOR SENS DFCT SW
OPEN SW DFL XCX CLOSE OPEN VOL.DOWN VOL.UP L.ON CLOSE SW
RESET DDRP MUTE DCS LOCK FOK CLOCK XLAT DATA MUTE SQCK SQSO SCOR SENS DFCT SW OPEN SW DFL XCX CLOSE OPEN VOL.DOWN VOL.UP L.ON CLOSE SW
J201
J203
J204
ENN-320-2
ENN-320-3
C201 4.7/50
C202 4.7/50
TO ENN-321 P102
FW102
GND -VDISP +5V F1 F2
R210 47K
R211 47K
R212 47K
R213 47K
SW206 EDIT
SW207 A/B
SW208 DDRP
SW209 RANDOM
SW201 ▲
SW202 REPEAT
SW203 PROG
SW204 CANCEL
POWER SUPPLY SECTION
J (FOR U.S.A.)
C (FOR CANADA)
T101
120V
0V
LIVE
NEUTRAL
AC120V~ 60Hz
ENN-321-1
EF (FOR CONTINENTAL EUROPE)
EN (FOR SCANDINAVIA)
G (FOR GERMANY)
240V 230V
AC230V~ 50Hz
A (FOR AUSTRALIA)
AC240V~ 50Hz
BS (FOR UNITED KINGDOM)
U (FOR UNIVERSAL TYPE)
AC115-127V
AC220-240V
SW102
ENN-332-2
AC115-127V~ AC220-240V~ 50Hz/60Hz
A B C D E F G H I J K L M N O P Q R S T
1 2 3 4 5 6 7 8 9 10 11 12 13 14

XL-Z451TN
XL-Z452BK

Schematic Diagrams

1. CD Main & Power Supply Section


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
1
2
3
4
5
6
7
8
9
10
11
12
13
14
ENN-320-2
FRONT P.C.B
REFER TO SHEET 2
ENN-320-3
ENN-320-1
TO ENN-321
ENN-320-4
ENN-321-1
OPTIMA-5
MECHA.A'SSY
FEED MOTOR
LOAD MOTOR
SERVO HEAD AMP
SERVO SIGNAL PROCESSOR & DRIVER
FOCUSING
TRACKING
FEED
SPINDLE
LOADING
IC401
DIGITAL SIGNAL PROCESSOR
IC501 CXA1571S
IC601 CXA1372S
POWER SWITCH
HEAD PHONE OUTPUT
FIX OUT
COMPULINK
OPTICAL DIGITAL OUTPUT
POWER SUPPLY
MUTE
Rch
Lch

*MARK

SYMBOL	J	A. BS. C. EF. EN. U. G
R101, R102	2.2	2.2 POSISTOR
R112	SHORT	10 UNF.F
R121, R122	SHORT	10 UNF.F
R127, R128	SHORT	120
R132	110	220
R133	NONE	220
R142	SHORT	56 UNF.F
R143	SHORT	120
CP101	SHORT	ICP-N15
C371, C373	NONE	5P
C454	NONE	0.022
C902	NONE	100P

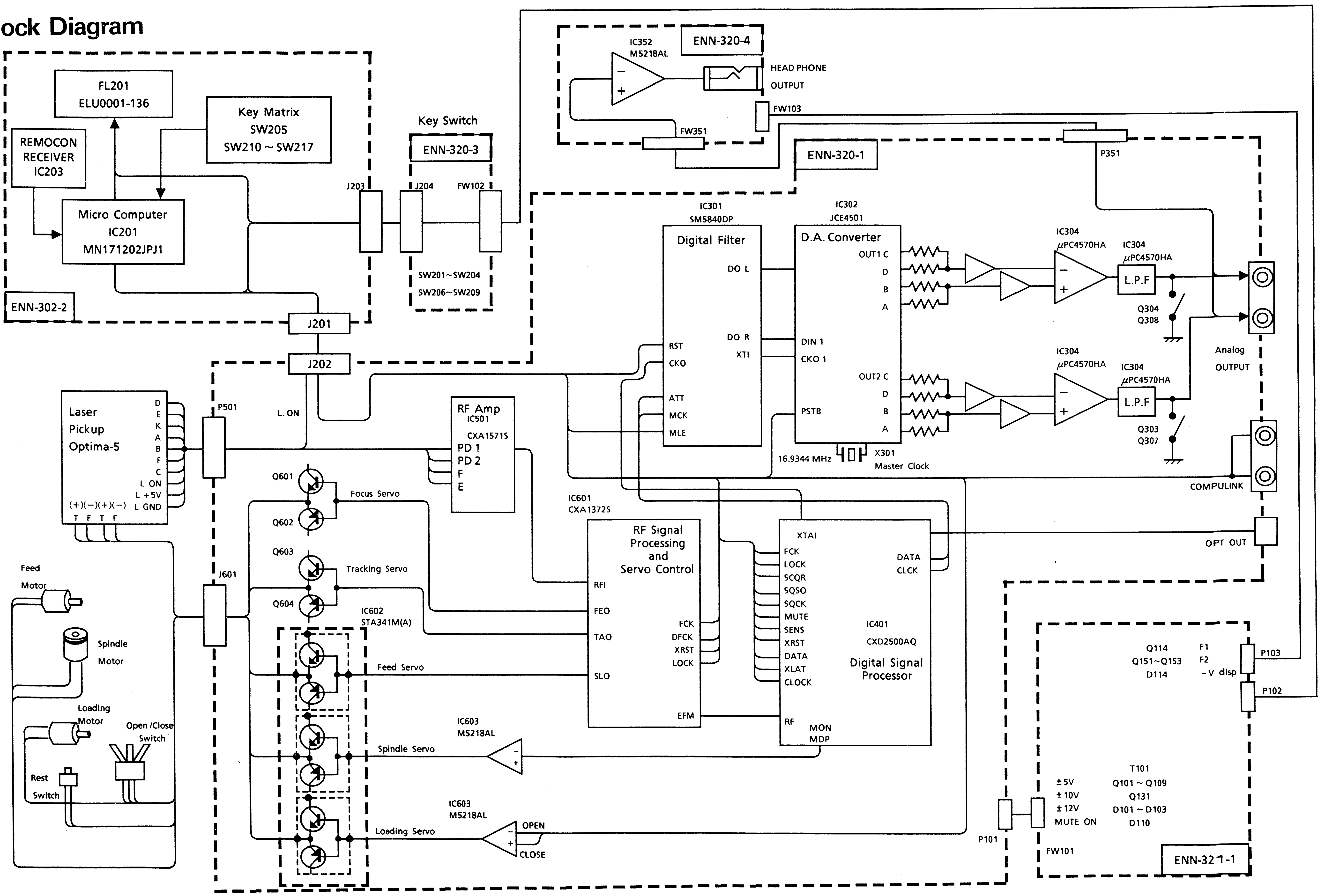
SYMBOL	J. C	A. BS. EF. EN. U. G
C101, C102	0.022	0.1 TF

How to Use Schematic Diagrams

1. ▬ indicates the +B line.
2. ▬ ▬ ▬ indicates the −B line.
3. ▨ indicates signal path.
4. ☐ indicates voltage value.
5. Parts marked with ⚠ and those in the shaded area ▨ are parts for safety. Be sure to use one with the specified part number.
6. This is the standard circuit diagram. The circuits and circuit constants are subject to change for improvement without notice.

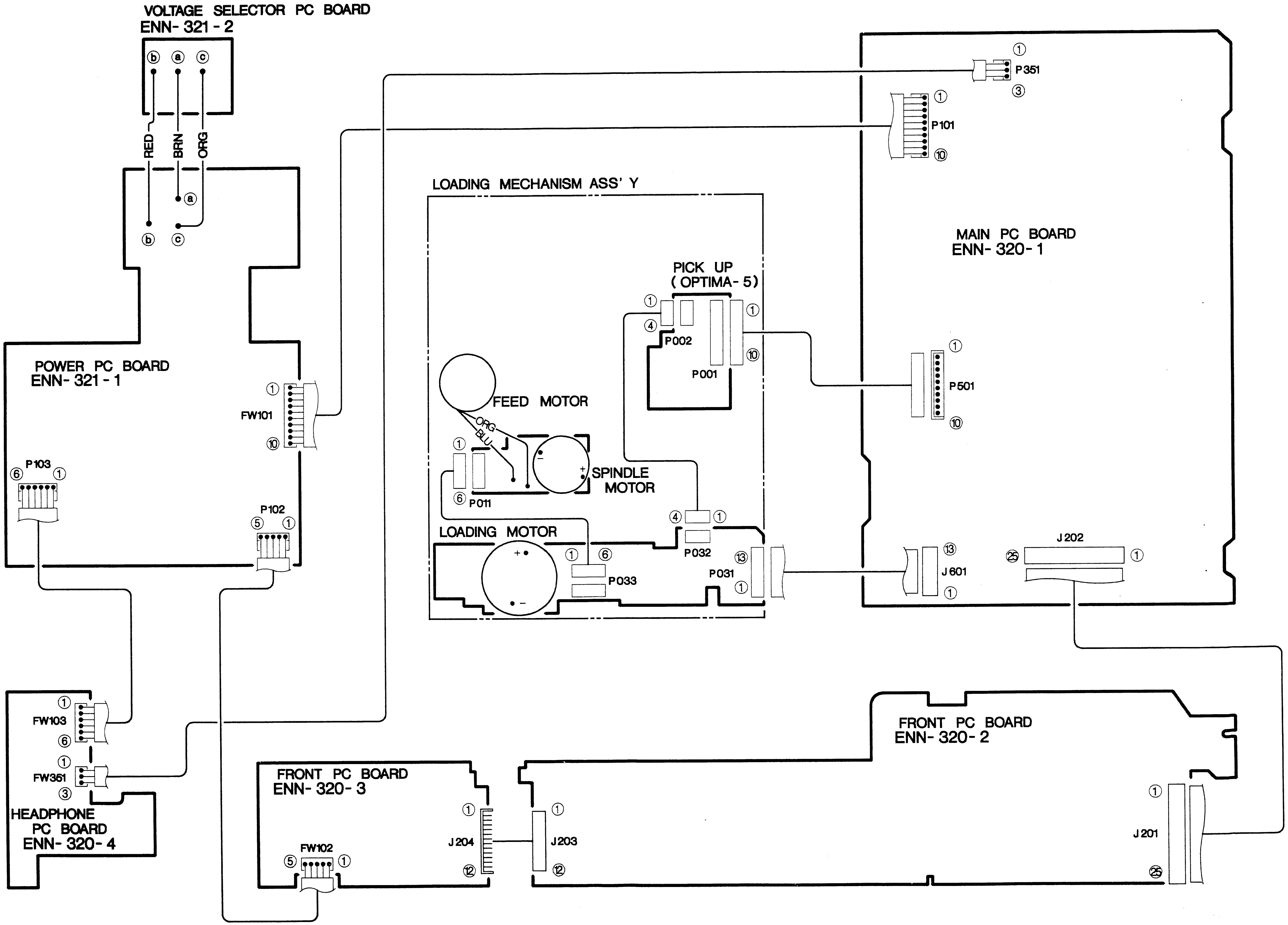
(No. 20324)

Block Diagram


FL201
ELU0001-136
Key Matrix
SW205
SW210 ~ SW217
REMOCON
RECEIVER
IC203
Micro Computer
IC201
MN171202JPJ1
ENN-302-2
J203
J201
J202
Key Switch
ENN-320-3
J204
FW102
SW201~SW204
SW206~SW209
IC352
M5218AL
ENN-320-4
HEAD PHONE
OUTPUT
FW103
FW351
P351
ENN-320-1
IC301
SM5840DP
Digital Filter
DO L
DO R
XTI
RST
CKO
ATT
MCK
MLE
IC302
JCE4501
D.A. Converter
OUT1 C
D
B
A
DIN 1
CKO 1
OUT2 C
PSTB
16.9344 MHz
X301
Master Clock
IC304
µPC4570HA
L.P.F
Q304
Q308
Q303
Q307
Analog
OUTPUT
COMPULINK
OPT OUT
Laser
Pickup
Optima-5
D
E
K
A
B
F
C
L ON
L +5V
L GND
(+)(−)(+)(−)
T F T F
P501
L. ON
RF Amp
IC501
CXA1571S
PD 1
PD 2
F
E
Q601
Q602
Focus Servo
Q603
Q604
Tracking Servo
IC602
STA341M(A)
Feed Servo
Spindle Servo
Loading Servo
IC603
M5218AL
OPEN
CLOSE
J601
Feed
Motor
Spindle
Motor
Loading
Motor
Open /Close
Switch
Rest
Switch
IC601
CXA1372S
RF Signal
Processing
and
Servo Control
RFI
FEO
TAO
SLO
FCK
DFCK
XRST
LOCK
EFM
XTAI
FCK
LOCK
SCQR
SQSO
SQCK
MUTE
SENS
XRST
DATA
XLAT
CLOCK
RF
MON
MDP
DATA
CLCK
IC401
CXD2500AQ
Digital Signal
Processor
Q114
Q151~Q153
D114
F1
F2
−V disp
P103
P102
±5V
±10V
±12V
MUTE ON
T101
Q101 ~ Q109
Q131
D101 ~ D103
D110
P101
FW101
ENN-321-1

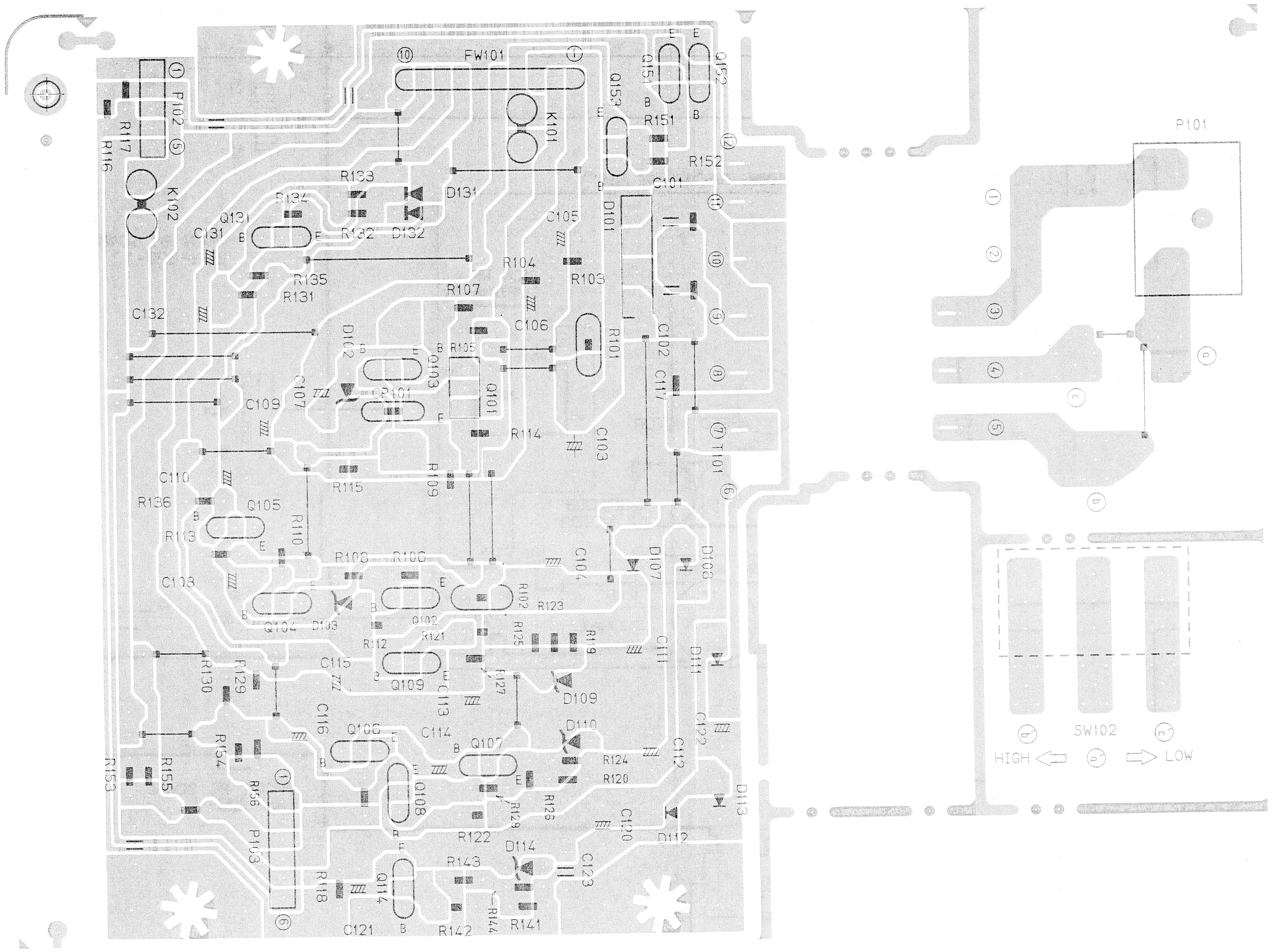
XL-Z451TN
XL-Z452BK

Connection Diagram


VOLTAGE SELECTOR PC BOARD
ENN-321-2
ⓑ ⓐ ⓒ
RED
BRN
ORG
ⓐ
ⓑ ⓒ
POWER PC BOARD
ENN-321-1
FW101
①
⑩
P103
⑥ ①
P102
⑤ ①
LOADING MECHANISM ASS'Y
PICK UP
(OPTIMA-5)
① ④
P002
P001
① ⑩
FEED MOTOR
ORG
BLU
SPINDLE
MOTOR
① ⑥
P011
LOADING MOTOR
① ⑥
P033
④ ①
P032
P031
⑬ ①
MAIN PC BOARD
ENN-320-1
① P351 ③
① P101 ⑩
① P501 ⑩
⑬ J601 ①
J202
㉕ ①
FW103
① ⑥
FW351
① ③
HEADPHONE
PC BOARD
ENN-320-4
FRONT PC BOARD
ENN-320-3
FW102
⑤ ①
J204
① ⑫
J203
① ⑫
FRONT PC BOARD
ENN-320-2
J201
① ㉕

(No. 20324)

■ Power Supply P.C.B. (ENN-321)


FW101
P102
R117
R116
K102
K101
Q153
Q151
Q152
R151
R152
C101
D101
R133
R134
D131
D132
Q131
C131
R132
C105
R104
R103
R135
R131
R107
C132
C106
R101
D102
R105
Q103
Q101
C102
C117
C107
CP101
C109
R114
C103
T101
C110
R115
R109
R136
Q105
R113
R110
R108
R106
C104
D107
D108
C108
Q104
D103
Q102
R102
R123
R121
R125
R19
C111
D111
R112
R130
R129
C115
Q109
R127
D109
C113
C116
Q106
C114
Q107
D110
C122
R124
C112
R120
R153
R155
R154
R156
Q108
R129
R126
C120
D113
D112
R122
D114
R143
C123
P103
R118
Q114
R144
R141
C121
R142
P101
SW102
HIGH
LOW
①
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B
E

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C113	QETB1CM-476	47MF 16V ELECTRO	
	C114	QETB1CM-476	47MF 16V ELECTRO	
	C115	QETB1CM-227	220MF 16V ELECTRO	
	C116	QETB1CM-227	220MF 16V ELECTRO	
	C120	QETB1HM-107	100MF 50V ELECTRO	
	C121	QETB1HM-475	4.7MF 50V ELECTRO	
	C122	QETB1EM-107	100MF 25V ELECTRO	
	C123	QCF21HP-473	0.047MF 50V CERAMIC	
	C131	QETB1CM-227	220MF 16V ELECTRO	
	C132	QETB1CM-226	22MF 16V ELECTRO	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R101	PTH8L07BB2R2N1B	POSITIVE	
	R102	PTH8L07BB2R2N1B	POSITIVE	
	R105	QRD167J-222	2.2K 1/6W CARBON	
	R106	QRD167J-222	2.2K 1/6W CARBON	
	R107	QRD167J-221	220 1/6W CARBON	
	R108	QRD167J-221	220 1/6W CARBON	
	R109	QRD167J-221	220 1/6W CARBON	
	R110	QRD167J-221	220 1/6W CARBON	
⚠	R112	QRZ0077-100	10 1/4W FUSIBLE	
	R113	QRD167J-331	330 1/6W CARBON	
	R114	QRD167J-202	2K 1/6W CARBON	
	R115	QRD167J-332	3.3K 1/6W CARBON	
	R116	QRD167J-911	910 1/6W CARBON	
	R117	QRD167J-911	910 1/6W CARBON	
	R118	QRD167J-103	10K 1/6W CARBON	
	R119	QRD167J-512	5.1K 1/6W CARBON	
	R120	QRD167J-512	5.1K 1/6W CARBON	
⚠	R121	QRZ0077-100	10 1/4W FUSIBLE	
⚠	R122	QRZ0077-100	10 1/4W FUSIBLE	
	R123	QRD167J-512	5.1K 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	R124	QRD167J-512	5.1K 1/6W CARBON	
	R125	QRD167J-512	5.1K 1/6W CARBON	
	R126	QRD167J-512	5.1K 1/6W CARBON	
	R127	QRD167J-121	120 1/6W CARBON	
	R128	QRD167J-121	120 1/6W CARBON	
	R129	QRD167J-472	4.7K 1/6W CARBON	
	R130	QRD167J-472	4.7K 1/6W CARBON	
	R131	QRD167J-221	220 1/6W CARBON	
	R132	QRD167J-221	220 1/6W CARBON	
	R133	QRD167J-221	220 1/6W CARBON	
	R134	QRD167J-822	8.2K 1/6W CARBON	
	R135	QRD167J-683	68K 1/6W CARBON	
	R136	QRD167J-103	10K 1/6W CARBON	
	R141	QRD167J-472	4.7K 1/6W CARBON	
⚠	R142	QRZ0077-560	56 1/4W FUSIBLE	
	R143	QRD167J-121	120 1/6W CARBON	
	R144	QRD167J-472	4.7K 1/6W CARBON	
	R151	QRD167J-103	10K 1/6W CARBON	
	R152	QRD167J-103	10K 1/6W CARBON	
	R153	QRD167J-271	270 1/6W CARBON	
	R154	QRD167J-271	270 1/6W CARBON	
	R155	QRD167J-271	270 1/6W CARBON	
	R156	QRD167J-271	270 1/6W CARBON	

⚠ : SAFETY PARTS

Others

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
		EMW10218-002(S)	PRINTED BOARD	A
		EMW10218-002BSS	PRINTED BOARD	BBS
		EMW10218-002(S)	PRINTED BOARD	E
		EMW10218-002(S)	PRINTED BOARD	G
		E70306-001	HEAT SINK	
		E70859-001	EARTH PLATE	
		SBSE3008Z	SCREW	
	P101	QMCB001-E02H	AC SOCKET	A
		QMCB001-E02HBS	AC SOCKET	BBS
		QMCB001-E02H	AC SOCKET	E
		QMCB001-E02H	AC SOCKET	G
	P102	VMC0107-005	CONNECT TERMINAL(5PIN)	
	P103	VMC0107-006	CONNECT TERMINAL(6PIN)	
⚠	CP101	ICP-N15	I.C. PROTECTOR	
	FW101	EWR3AB-25LST	FLAT WIRE(10PIN)	

⚠ : SAFETY PARTS

Accessories List

⚠	Part Number	Part Name	Q'ty	Description	Areas
	E30580-1872A	Instruction Book	1		A
	E30580-1873A	Instruction Book	1		EF, G
	E30580-1874A	Instruction Book	1		EN
	E30580-1872ABS	Instruction Book	1		BS
	BT-20117	Warranty Card	1		G
	BT20060	Warranty Card	1		BS
	BT-20122	Warranty Card	1		A
	BT-20122-1	Sticker	1		A
	BT20066A	EEC Agency	1		BS
	E43486-340A	Safety Sheet	1		BS
	EWP302-011	Signal Cord	1		
⚠	EWP805-001	Signal Cord	1		A
	RM-SX451U	Remote Controller	1		
	UM-4NJ-2PSA	Battery	1		
	QMP25C0-183	Power Cord	1		
⚠	QMP39G0-183E	Power Cord	1		EN, EF, G
⚠	QMP5510-183BS	Power Cord	1		BS
	E300196-010B	Envelope	1		

⚠: Safety Parts

The Marks Designated Areas

A··················Australia
G··················Germany
BS··················the U.K.
EN··················Scandinavia
EF··················Continental Europe
No mark indicates all areas.

Capacitors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
	C113	QETB1CM-476	47MF 16V ELECTRO	
	C114	QETB1CM-476	47MF 16V ELECTRO	
	C115	QETB1CM-227	220MF 16V ELECTRO	
	C116	QETB1CM-227	220MF 16V ELECTRO	
	C120	QETB1HM-107	100MF 50V ELECTRO	
	C121	QETB1HM-475	4.7MF 50V ELECTRO	
	C122	QETB1EM-107	100MF 25V ELECTRO	
	C123	QCF21HP-473	0.047MF 50V CERAMIC	
	C131	QETB1CM-227	220MF 16V ELECTRO	
	C132	QETB1CM-226	22MF 16V ELECTRO	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
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	R102	PTH8L07BB2R2N1B	POSITIVE	
	R105	QRD167J-222	2.2K 1/6W CARBON	
	R106	QRD167J-222	2.2K 1/6W CARBON	
	R107	QRD167J-221	220 1/6W CARBON	
	R108	QRD167J-221	220 1/6W CARBON	
	R109	QRD167J-221	220 1/6W CARBON	
	R110	QRD167J-221	220 1/6W CARBON	
⚠	R112	QRZ0077-100	10 1/4W FUSIBLE	
	R113	QRD167J-331	330 1/6W CARBON	
	R114	QRD167J-202	2K 1/6W CARBON	
	R115	QRD167J-332	3.3K 1/6W CARBON	
	R116	QRD167J-911	910 1/6W CARBON	
	R117	QRD167J-911	910 1/6W CARBON	
	R118	QRD167J-103	10K 1/6W CARBON	
	R119	QRD167J-512	5.1K 1/6W CARBON	
	R120	QRD167J-512	5.1K 1/6W CARBON	
⚠	R121	QRZ0077-100	10 1/4W FUSIBLE	
⚠	R122	QRZ0077-100	10 1/4W FUSIBLE	
	R123	QRD167J-512	5.1K 1/6W CARBON	

⚠ : SAFETY PARTS

Resistors

⚠	ITEM	PART NUMBER	DESCRIPTION	AREA
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	R125	QRD167J-512	5.1K 1/6W CARBON	
	R126	QRD167J-512	5.1K 1/6W CARBON	
	R127	QRD167J-121	120 1/6W CARBON	
	R128	QRD167J-121	120 1/6W CARBON	
	R129	QRD167J-472	4.7K 1/6W CARBON	
	R130	QRD167J-472	4.7K 1/6W CARBON	
	R131	QRD167J-221	220 1/6W CARBON	
	R132	QRD167J-221	220 1/6W CARBON	
	R133	QRD167J-221	220 1/6W CARBON	
	R134	QRD167J-822	8.2K 1/6W CARBON	
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	R152	QRD167J-103	10K 1/6W CARBON	
	R153	QRD167J-271	270 1/6W CARBON	
	R154	QRD167J-271	270 1/6W CARBON	
	R155	QRD167J-271	270 1/6W CARBON	
	R156	QRD167J-271	270 1/6W CARBON	

⚠ : SAFETY PARTS

Others

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		EMW10218-002BSS	PRINTED BOARD	BBS
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		EMW10218-002(S)	PRINTED BOARD	G
		E70306-001	HEAT SINK	
		E70859-001	EARTH PLATE	
		SBSE3008Z	SCREW	
	P101	QMCB001-E02H	AC SOCKET	A
		QMCB001-E02HBS	AC SOCKET	BBS
		QMCB001-E02H	AC SOCKET	E
		QMCB001-E02H	AC SOCKET	G
	P102	VMC0107-005	CONNECT TERMINAL(5PIN)	
	P103	VMC0107-006	CONNECT TERMINAL(6PIN)	
⚠	CP101	ICP-N15	I.C. PROTECTOR	
	FW101	EWR3AB-25LST	FLAT WIRE(10PIN)	

⚠ : SAFETY PARTS

Accessories List

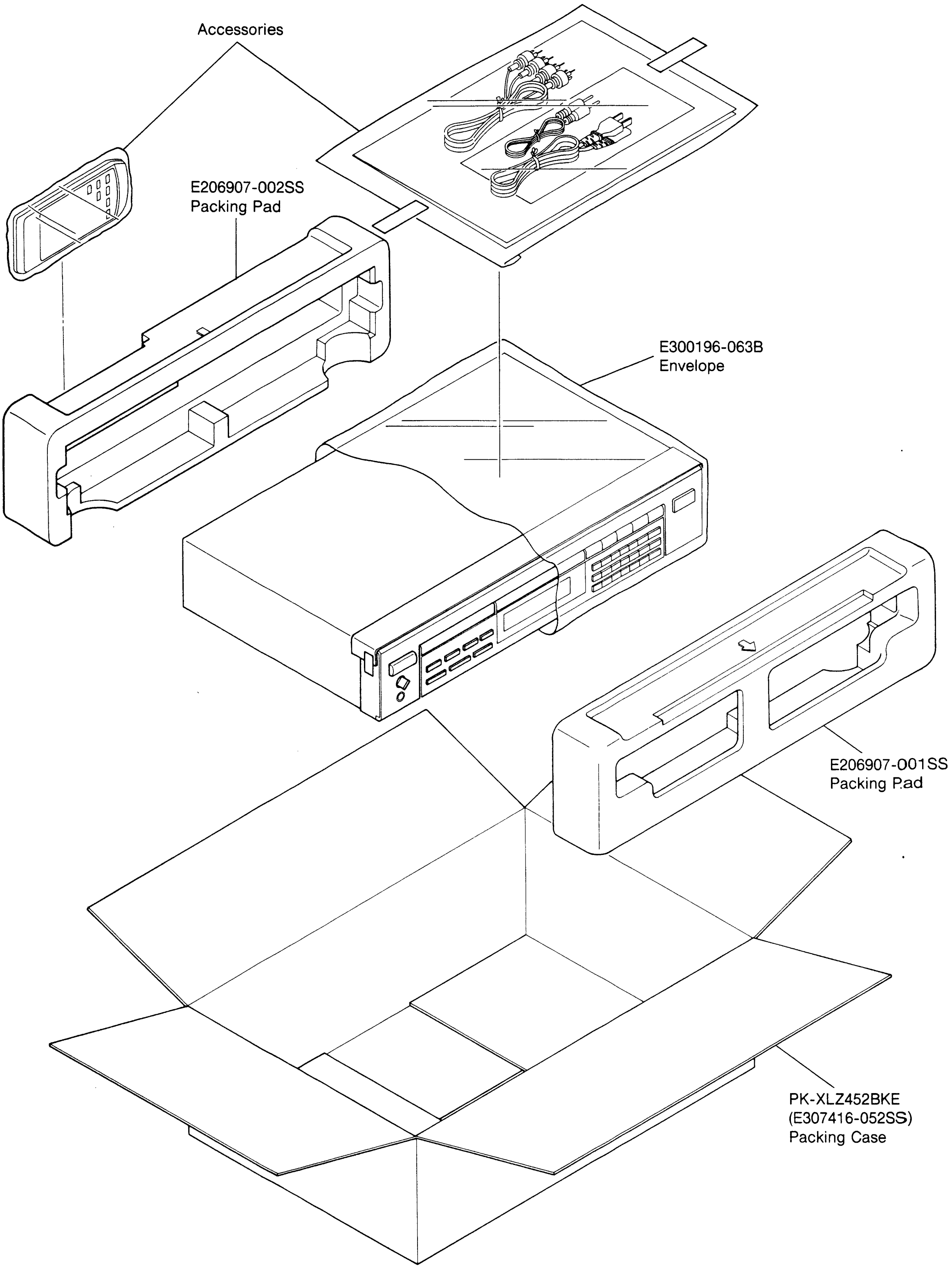
⚠	Part Number	Part Name	Q'ty	Description	Areas
	E30580-1872A	Instruction Book	1		A
	E30580-1873A	Instruction Book	1		EF, G
	E30580-1874A	Instruction Book	1		EN
	E30580-1872ABS	Instruction Book	1		BS
	BT-20117	Warranty Card	1		G
	BT20060	Warranty Card	1		BS
	BT-20122	Warranty Card	1		A
	BT-20122-1	Sticker	1		A
	BT20066A	EEC Agency	1		BS
	E43486-340A	Safety Sheet	1		BS
	EWP302-011	Signal Cord	1		
⚠	EWP805-001	Signal Cord	1		A
	RM-SX451U	Remote Controller	1		
	UM-4NJ-2PSA	Battery	1		
	QMP25C0-183	Power Cord	1		
⚠	QMP39G0-183E	Power Cord	1		EN, EF, G
⚠	QMP5510-183BS	Power Cord	1		BS
	E300196-010B	Envelope	1		

⚠: Safety Parts

The Marks Designated Areas

A……………………Australia
G……………………Germany
BS…………………the U.K.
EN…………………Scandinavia
EF…………………Continental Europe
No mark indicates all areas.

Packing Materials and Part Numbers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Packing Pad
E300196-063B
Envelope
E206907-001SS
Packing Pad
PK-XLZ452BKE
(E307416-052SS)
Packing Case

The Marks Designated Areas	
A……………………Australia	EN…………………Scandinavia
G……………………Germany	EF…………………Continental Europe
BS…………………the U.K.	No mark indicates all areas.